INV5100

USER MANUAL

Optimum Standalone NVR

Version 1.0.5

About this user manual

Before installing and using this NVR unit, please read this user manual carefully.

Be sure to keep it handy for later reference.

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Chapter 1 Introduction

1.1 Overview

Optimum Standalone NVR is powered by embedded Linux NVR software and Dual-core 750MHz (ARM 11MP with MMU) platform for superior performance and stability. This NVR systems can support iPUX IP camera series for 6CH A/V recording and let you access your recordings quickly and reliably. With this NVR system, customers can rapid deploy their IP surveillance application with optimum surveillance and operating efficiency and delivers a better security and stability than the counter-part Windows® powered system.

Application Architecture

Key Feature

- 6CH IP and 2 Mega-Pixel cameras recording
- H.264, MPEG-4 and M-JPEG compression for recording and playback
- Digital zoom for live view and playback
- NVR software pre-installed on flash memory for rapid system deployment
- Enhanced Linux OS, well-protection against viruses and hackers

- Windows® remote client and WEB remote client support
- CMS and 3G mobile surveillance support

Hardware Specification

Model	INV5100
Type	NVR
Default/Max. CH	6CH
Processor	Dual-core 750MHz (ARM 11MP with MMU)
Memory	128MB DDR2 SDRAM 256MB NAND Flash
HDD Tray(Shipping w/o HDD)	2 SATA bay (80GB - 3TB per HDD)
RAID	RAID 1
Ethernet	Gigabit Ethernet x 1
USB	USB2.0 x 2
Power Consumption	External power adapter, AC 50/60Hz, 100 to 240V, 1.2A, DC 12V/4A
Dimension(H x W x D)	8.1cm x 12.3cm x 17.7cm
Video Format	H.264/MPEG-4/M-JPEG
Recording	Max. 6CH, 180FPS, 1080P
Remote Management	Max. 6CH live/4CH playback/4 Users
Multi-NVR Management	Max. 16 NVRs

Software Specification

Camera Support

- IP cameras auto discovery within LAN
- Video Compression: H.264/ MPEG-4/ M-JPEG
- Video Resolution: Up to 2 Megapixel
- Video Streaming: compression, resolution, frame rate, bit rate/quality, brightness, contrast, hue, saturation and sharpness settings
- Channels Support (Recording): allows for up to 6CH 2 megapixel IP camera recording
- Audio: synchronized audio and video recording

Event Management

- Monitor video motion, digital input, camera disconnected, video loss, storage full, hard disk failure, backup failure, system boot-up, system shutdown and system configuration changed events within specified time.
- On-screen event alert, event log, digital output, email alert with attached recording video alert actions can be activated when an event is triggered

Backup

Recording

- Recording Speed: Max. 6CH, 180FPS@1080P recording
- Recording Mode: Continuous/motion/alarm recording, multiple continuous/motion/alarm recording schedules
- Recording Buffer: Adjustable for pre-event recording and post-event recording, recycle HDD and keep video days

Remote Live View

- View Mode: 1, 2X2, 1+5 and sequential display from NVR server
- OSD information: Camera name, date/time, record/event status
- View Control: Full screen display, original video aspect ratio, video snapshot, optical PTZ/digital PTZ control and audio control
- Device Tree: Tree View listing and management
- Event Control: Event List, Digital Input status and digital output control

Remote Playback

- Playback Mode: Max. 4CH playback
- Playback Mode: 1, 2X2 view mode
- Search Mode: By timeline
- Playback Control: Play, pause, reverse play, previous key frame/next frame, speed control(1, 2,4, 8. 16), video snapshot, digital zoom and audio control
- Export: Convert recording video to AVI, ASF or MKV format and export to external USB device
- Backup recording video of previous day to ftp server
- Copy button to copy recording video to USB device

System

- Support network firmware upgrade
- Support remote system shutdown and reboot

Security

- Authority Management: four-level privilege, different user rights can be assigned to different users
- Event Logs: detailed event logs
- User Logs: record of the users currently logged on and previously logged on to the NVR

Disk Management

- Support HDD S.M.A.R.T. to monitor hard disk drives status
- Redundant storage with non-RAID, RAID-1 HDD modes

Network

- Protocol: HTTP, DHCP, Static IP, DNS, PPPoE, DDNS, FTP, NTP, RDATE, SSH, UPnP and SMTP
- Outgoing Bandwidth Limit

Utility

- NVR setup wizard (discovery NVR, NVR network setting and quick setup IP Camera)
- Windows remote client, WEB remote client, iPhone/iPad client and Android client

iPhone/iPad and Android app

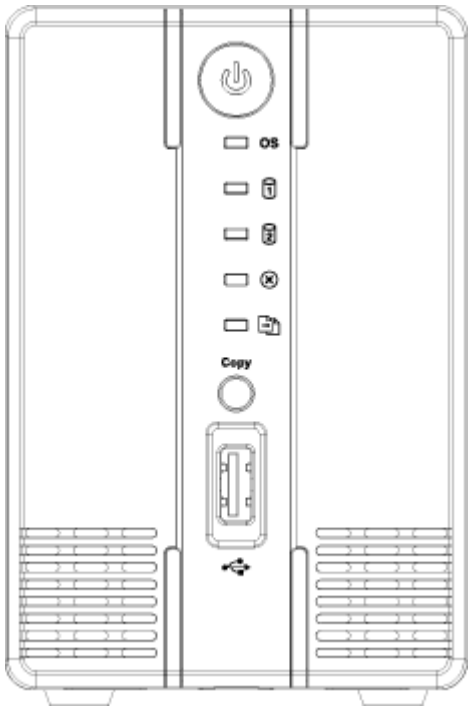
- 1, 4 screen division
- HD live view and event video playback
- Snapshot for evident
- PTZ, ePTZ control

1.2 Product Components

The package contains the main unit and its components as specified below. When you purchase the NVR, please check to ensure the components specified below are included.

- The NVR unit
- 2 screws for disk drives
- Power cord
- Setup Wizard, Windows® Remote Client, iPhone® / iPad® app and Android® app

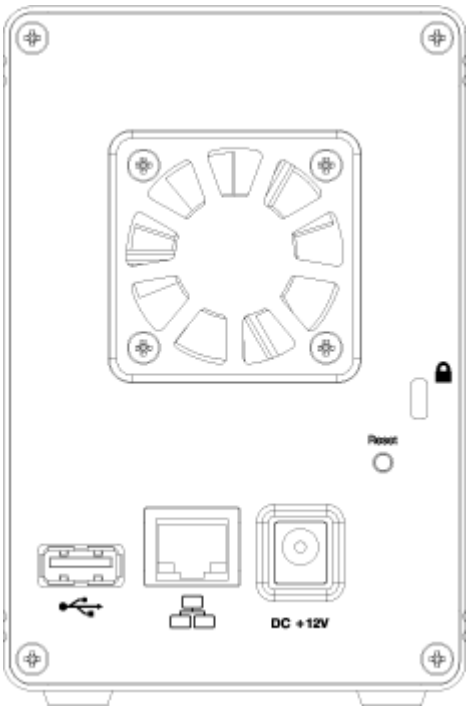
1.3 Front Panel



LED	Description
⏻	Power button (blue when turned on)
OS	Blue = System ready Flashing blue = System is starting up or shutting down
1 2	Flashing green = Data access
⊗	Red = System firmware is upgrading
	Orange = USB drive connected (front port only) Flashing orange = video clips copy from NVR to USB drive(front port only)
Copy	USB copy button (press to copy video clips from NVR to USB drive on the front)
	USB 2.0 host port

Note: Press and hold the copy button for one second to copy the video clips from the NVR to the USB drive on the front port

1.4 Rear Panel



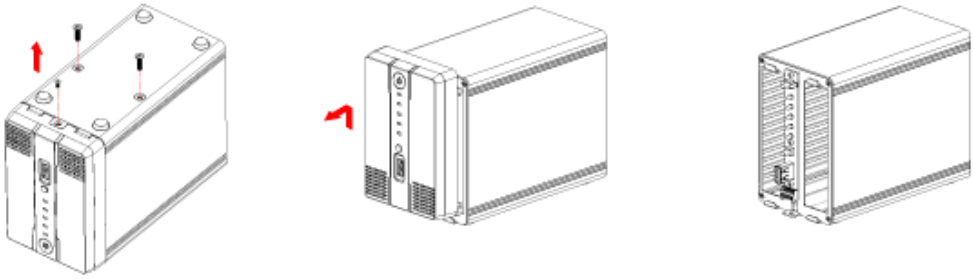
Label	Description
	USB 2.0 host port
	Gigabit Ethernet port
DC +12V	Power receptacle
Reset	System reset button
	Security lock slot

Note: To reset the configurations (e.g. admin password, DHCP settings, preferences, etc.), make sure the power is ON and the system is running. Press and hold the Reset button for 5 seconds and then release it.

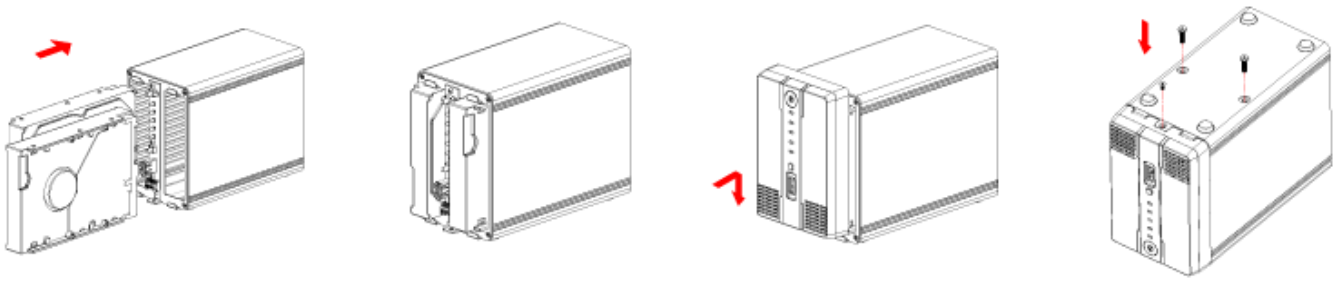
Chapter 2 Installation

2.1 HDD Installation

1. Remove the screw at the bottom of the case and lift the front panel upward and away from the housing to remove it.



2. Install the hard drives as illustrated below with the top of the drives, where the label is located, facing each other. Push the drives lightly into place and then replace the front panel. Mount the front panel and the drives by fastening the screws at the bottom of the case.



Note: Please install HDDs with the same model and storage capacity for easily maintenance.

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2.2 Hardware connection

1. Connect one end of the network cable to the gigabit network port.
   Note: Make sure network port is connected to the network via network cable. They will obtain IP addresses automatically via DHCP by default. You must enable the DHCP function within your network, as the NVR unit will retrieve an IP address through. (the IP Address and Netmask will default to 192.168.1.200, 255.255.255.0 for eth0 in case of no DHCP server

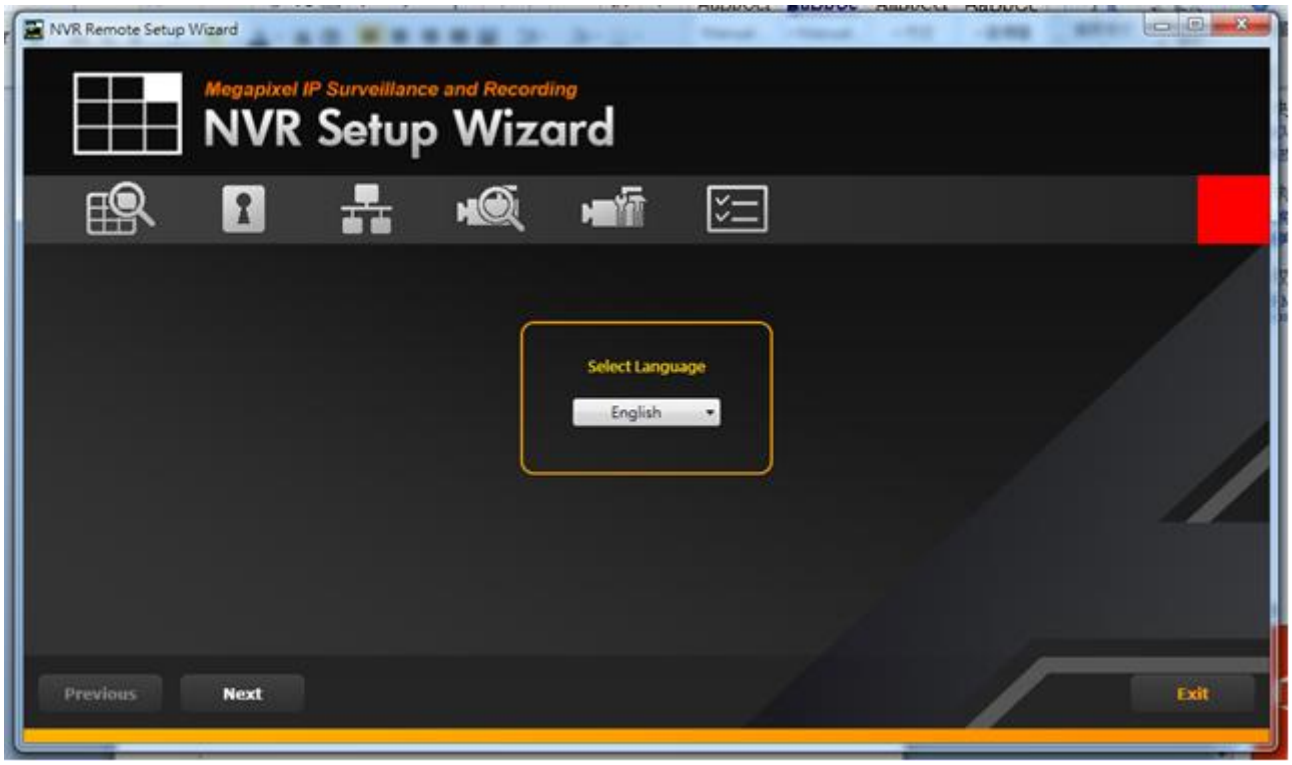
existed)

2. Connect the other end of the network cable to your Ethernet hub or switch.
3. Connect the power supply to your device first and only then plug it into the wall outlet. The system starts up automatically as soon as you plug in the power supply. It takes about 1-2 minutes for the device to go online but the blue system LED will indicate when the system is ready.
4. To safely turn off the device, press and hold the power button for about 4 seconds until the red LED starts flashing. The system will then shut down all services and about 20 seconds later, it will power down.
5. If for some reason the system is unresponsive, press and hold the power button for 6 seconds to forcefully shut down the system and cut off the power.

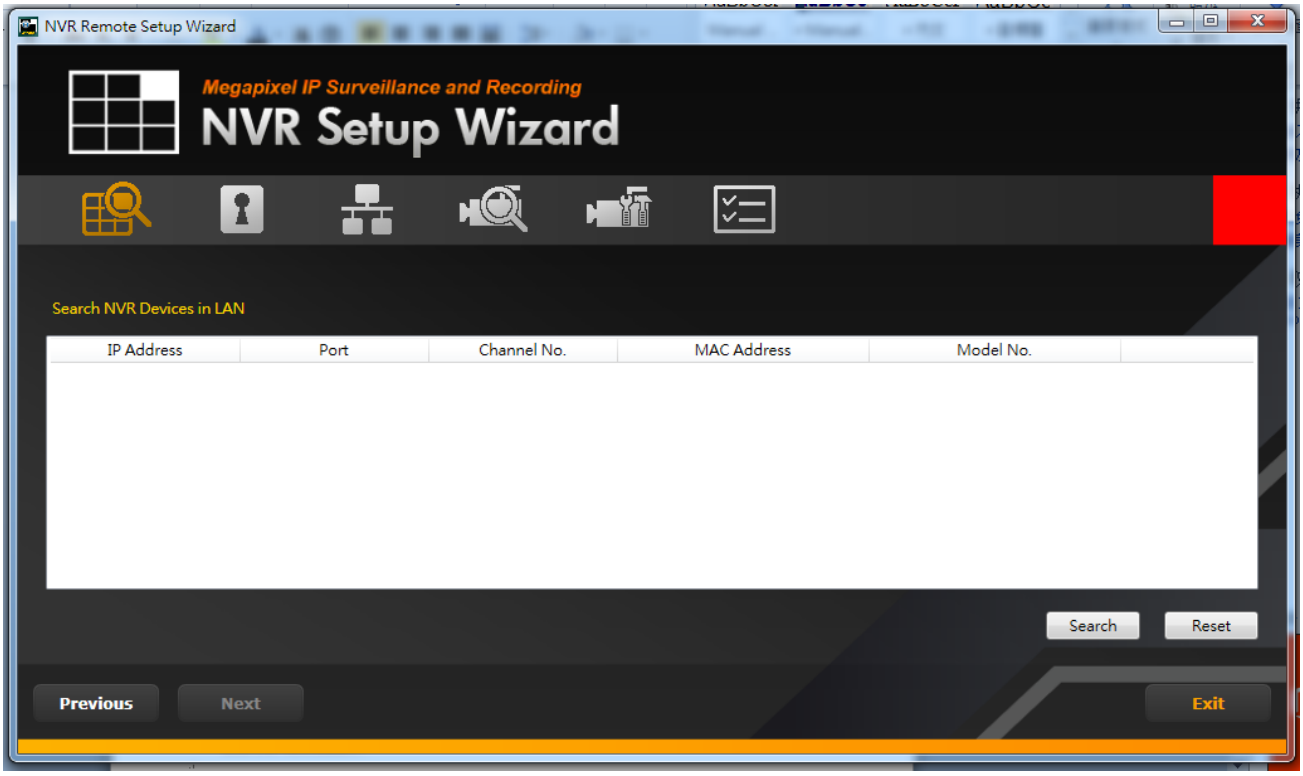
2.3 Setup NVR via Wizard

The NVR Setup Wizard (SetupWizard program) performs the initial setup procedures on the NVR unit. After this procedure, you can begin access NVR via Windows® remote client or WEB remote client..

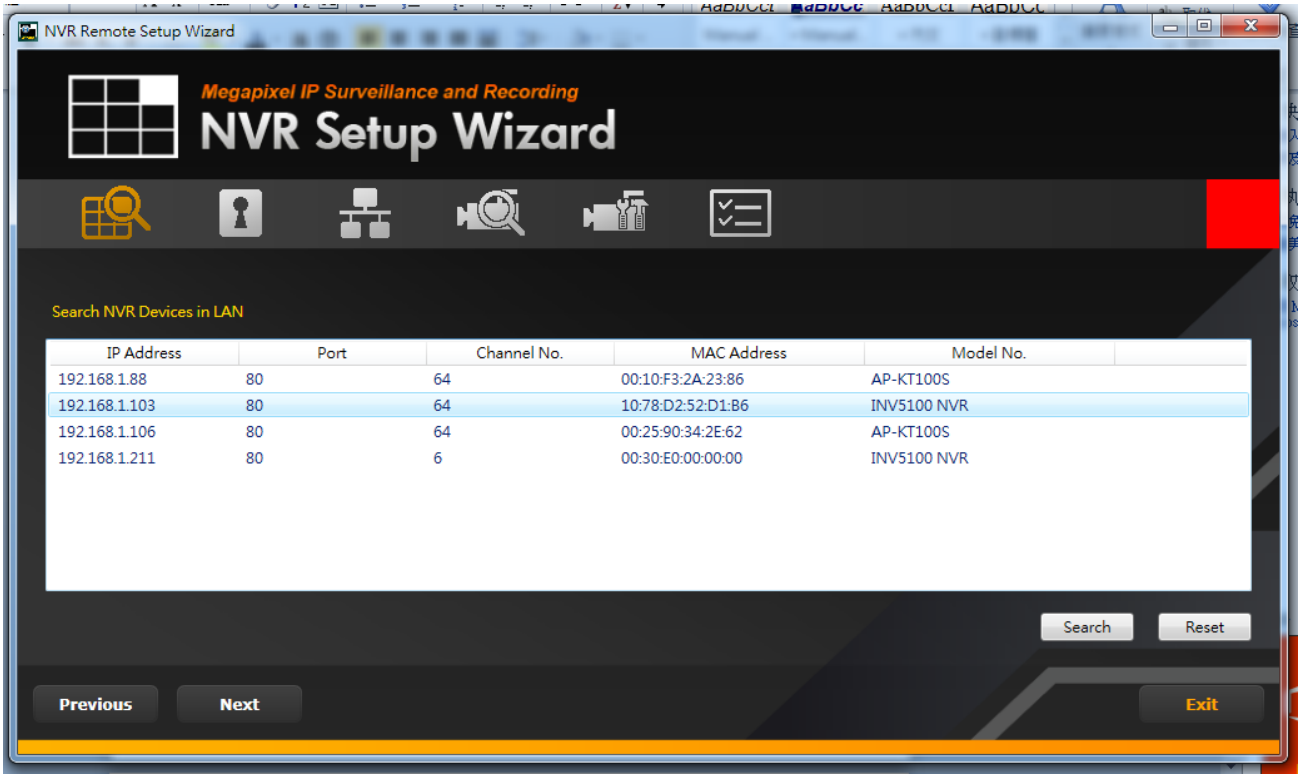
1. Get the NVR Client installation file.
2. Double-click NVR Client Installation.exe to begin installation.
3. Follow the instruction of NVR Client Installation.exe to install, or click the Exit button to close the installer.
4. Click the Start button -> NVR Remote Client -> SetupWizard.



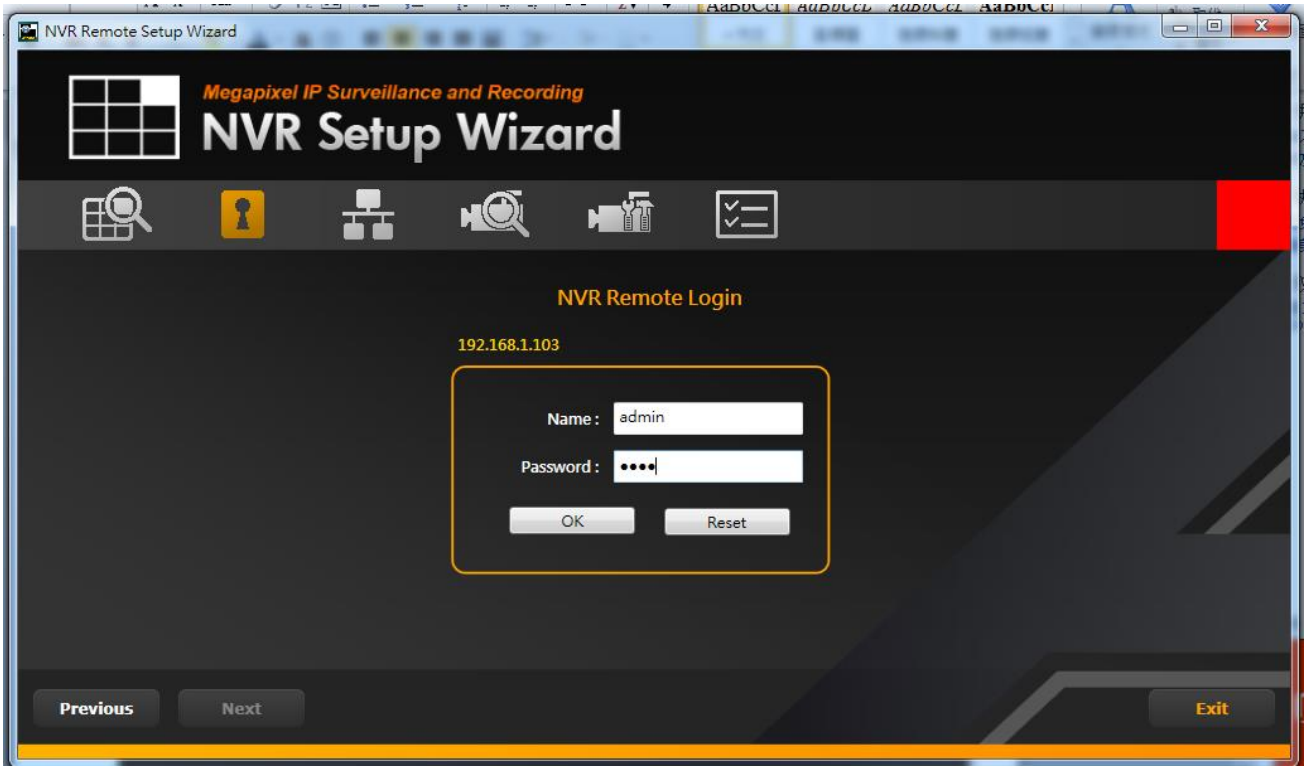
5. Choose your preferred language and then click the Next button



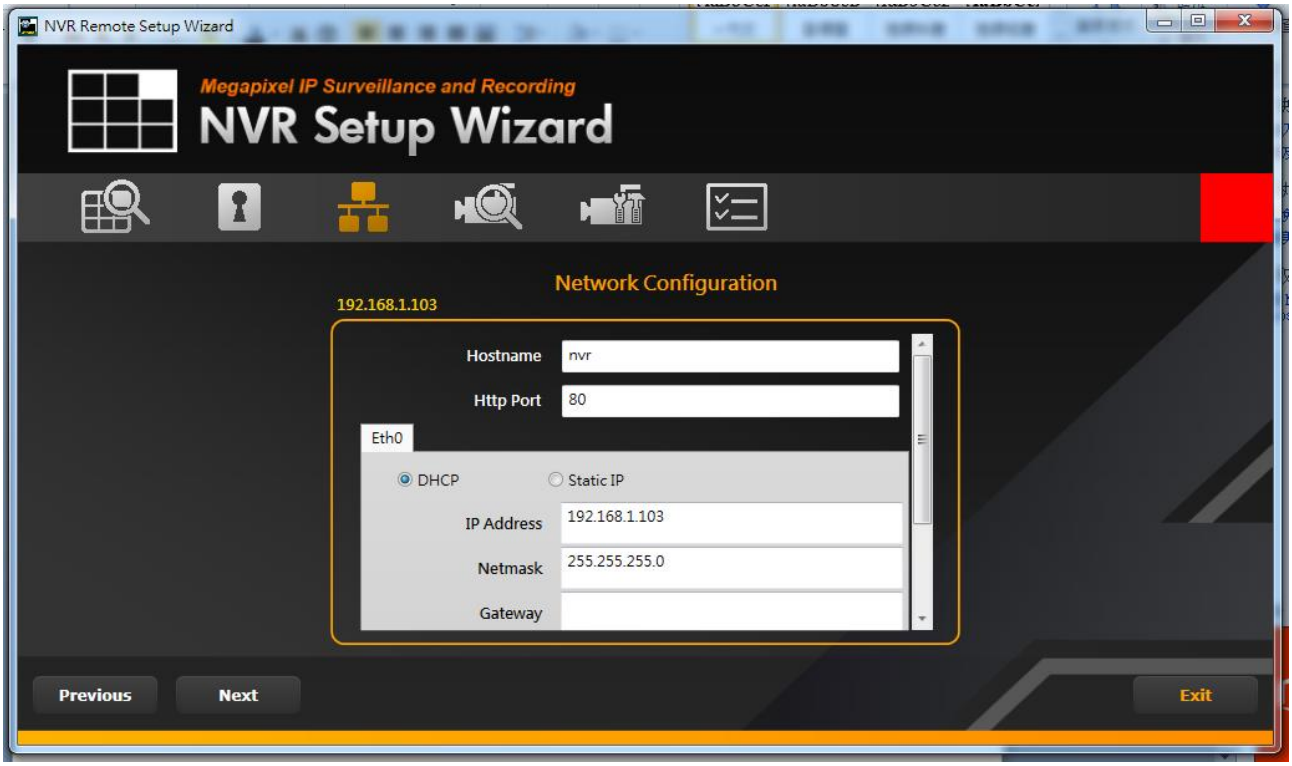
6. Click Search button, the NVR Setup Wizard will start searching for all the available NVRs on the LAN currently. Choose one of them, and then click the Next button.



7. Type in the admin password (**default is "1234"**), click the OK button and then click the Next button.



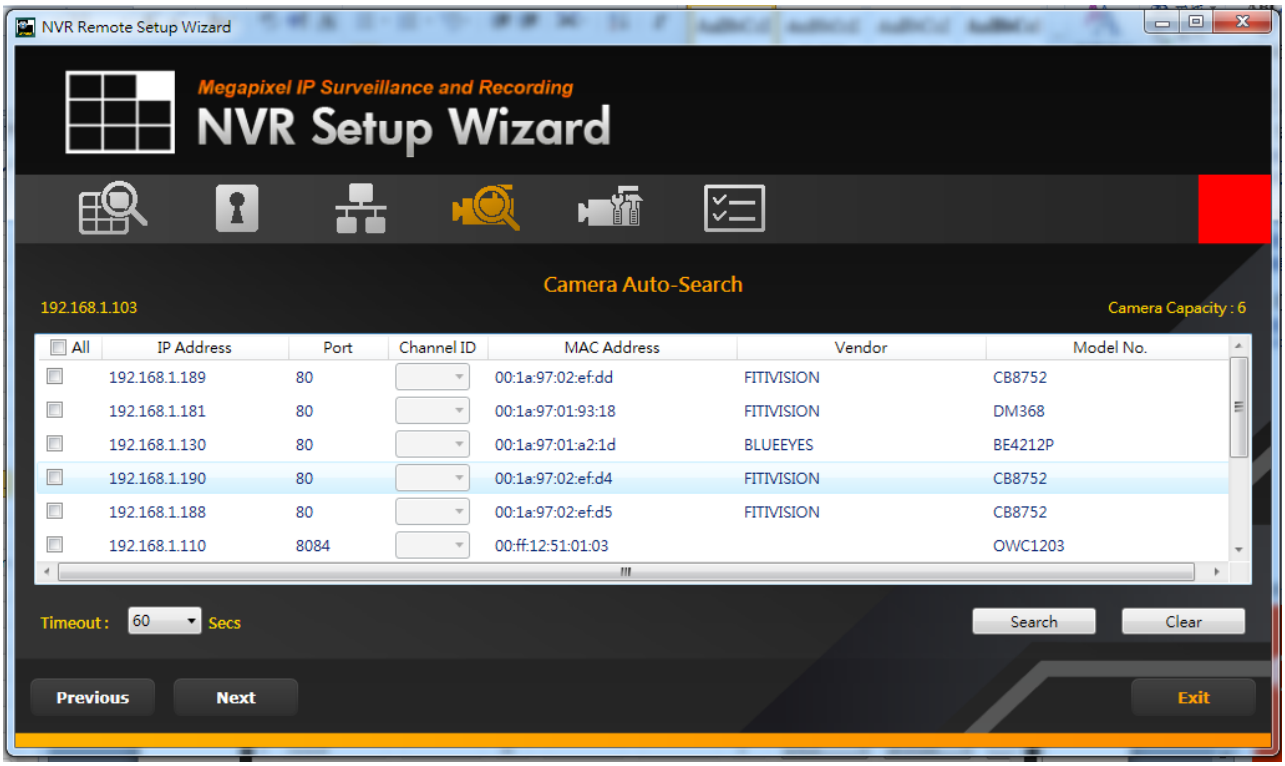
8. Type in the NVR hostname, http port (default is 80) and eth0/eth1 network setting, and then click the Next button.



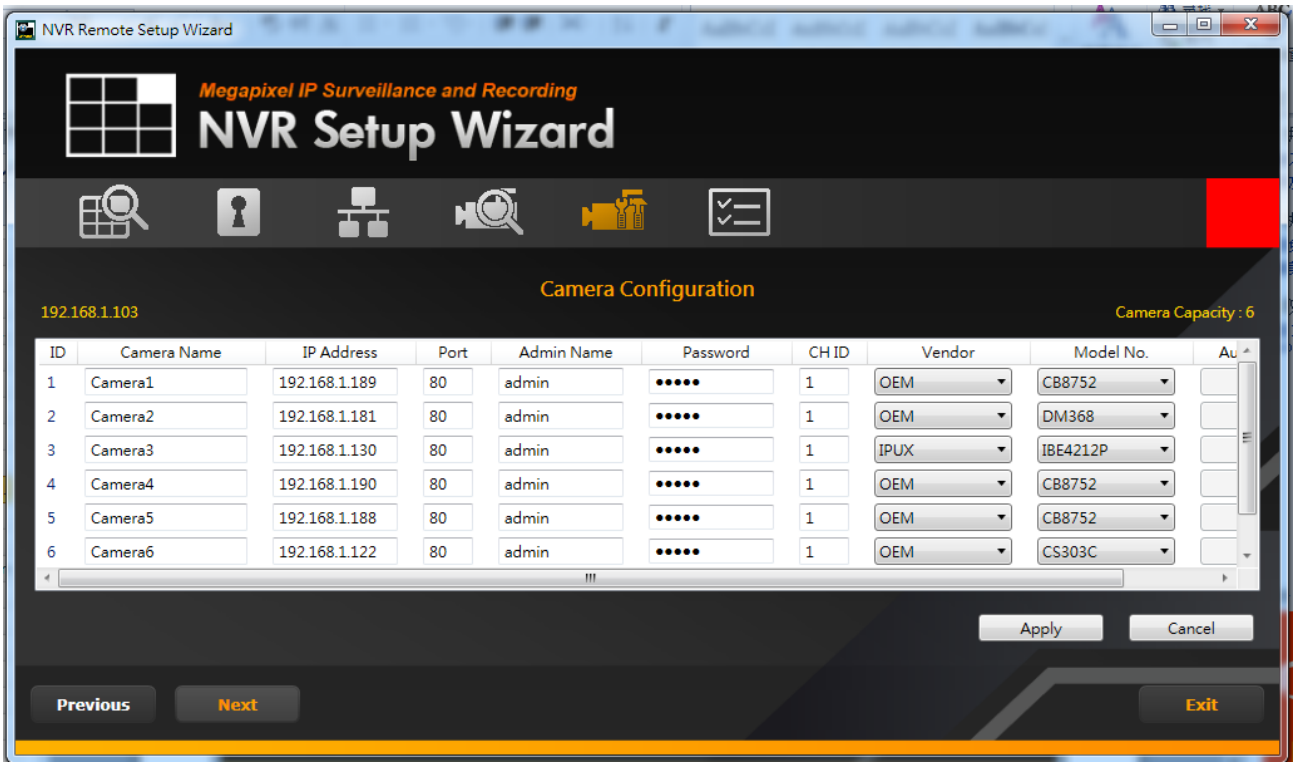
- DHCP IP Setting: obtain IP Address, Netmask, Gateway, Primary DNS Sever and Secondary DNS Server automatically via DHCP
- Static IP Setting: configure IP Address, Netmask, Gateway, Primary DNS Sever and

Secondary DNS Server manually.

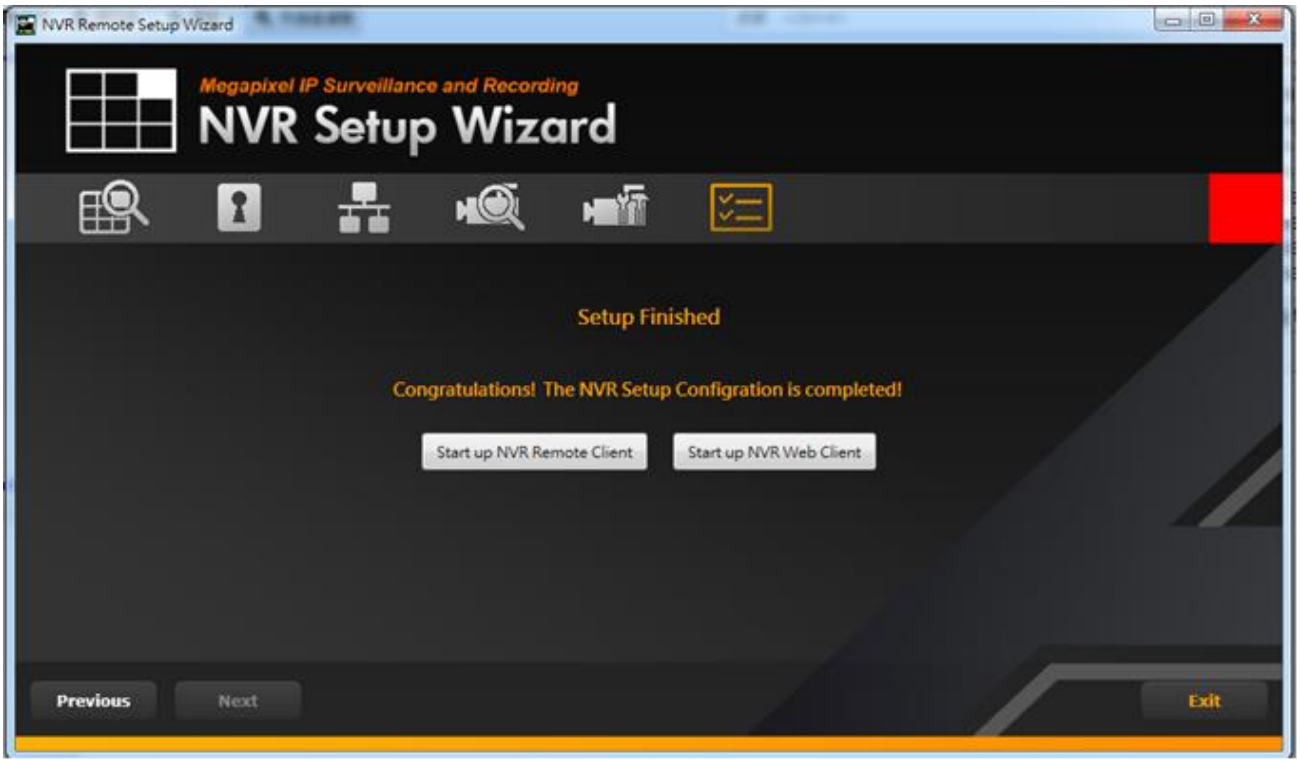
9. Add cameras for this server. Click Search to automatically find all IP cameras on the LAN currently. (adjust the Timeout parameter of the left bottom if can't find any connected IP camera, the default value is 60 seconds) Select the check box next to the desired IP camera or All for all IP cameras, and then click Next button.



10. Select the searched IP cameras or manually configuring the IP cameras for the Address, Port, Admin Name, Password, CH ID(video server only), Vendor, Model No. and click Apply and then Next button.


NVR Remote Setup Wizard
Megapixel IP Surveillance and Recording
NVR Setup Wizard
Camera Configuration
192.168.1.103
Camera Capacity : 6
ID | Camera Name | IP Address | Port | Admin Name | Password | CH ID | Vendor | Model No.
1 | Camera1 | 192.168.1.189 | 80 | admin | ••••• | 1 | OEM | CB8752
2 | Camera2 | 192.168.1.181 | 80 | admin | ••••• | 1 | OEM | DM368
3 | Camera3 | 192.168.1.130 | 80 | admin | ••••• | 1 | IPUX | IBE4212P
4 | Camera4 | 192.168.1.190 | 80 | admin | ••••• | 1 | OEM | CB8752
5 | Camera5 | 192.168.1.188 | 80 | admin | ••••• | 1 | OEM | CB8752
6 | Camera6 | 192.168.1.122 | 80 | admin | ••••• | 1 | OEM | CS303C
Apply
Cancel
Previous
Next
Exit

11. Click Start up NVR remote client or Start up NVR Web client to bring up the NVR remote client or Web client.



12. Click the Exit button to finish the settings procedure and activate the NVR unit.

Chapter 3 Getting Start

After the installation is done, you can begin to operate the NVR unit to monitor, playback the connected IP cameras and manage the functions of the NVR unit via Windows® remote client.

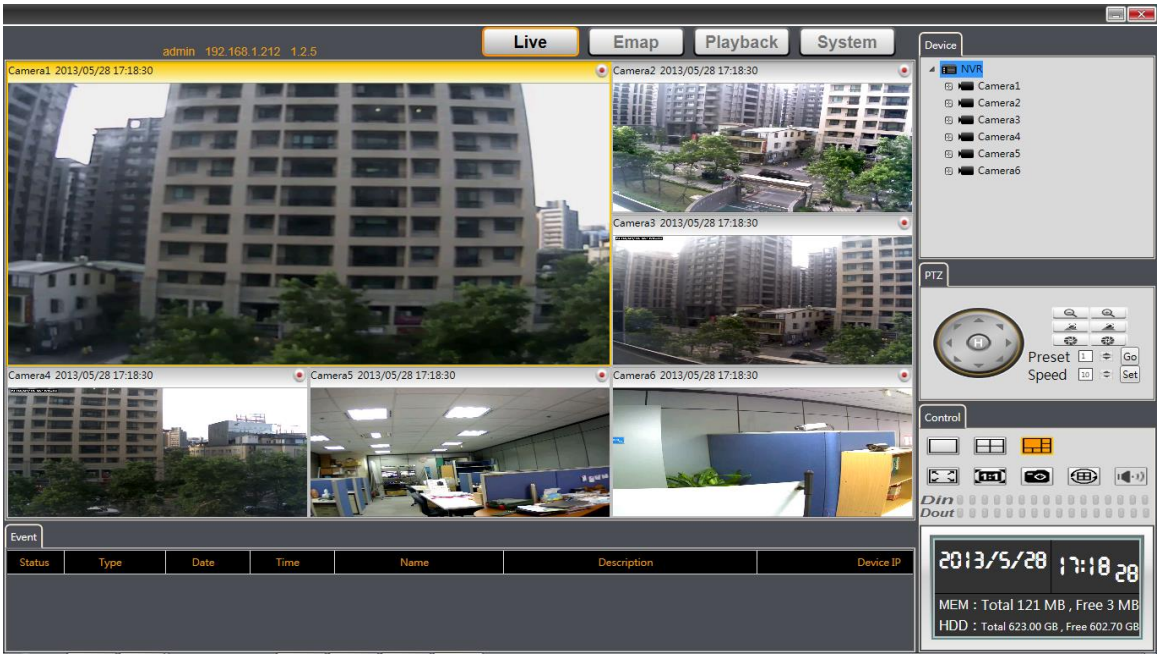
3.1 Login

Click the Start button -> NVR Client -> NVR Remote Client at your Windows® desktop. When the client is up, you will see the following login window.

Login window

Login your NVR unit by entering its NVR Name, IP Address, Port No., User Name, Password, Language and Resolution and then click OK begin using this unit. (Note: The default administrator: User Name is admin, Password is “1234”). After entering the correct information, you will see the live display screen within 10 seconds.

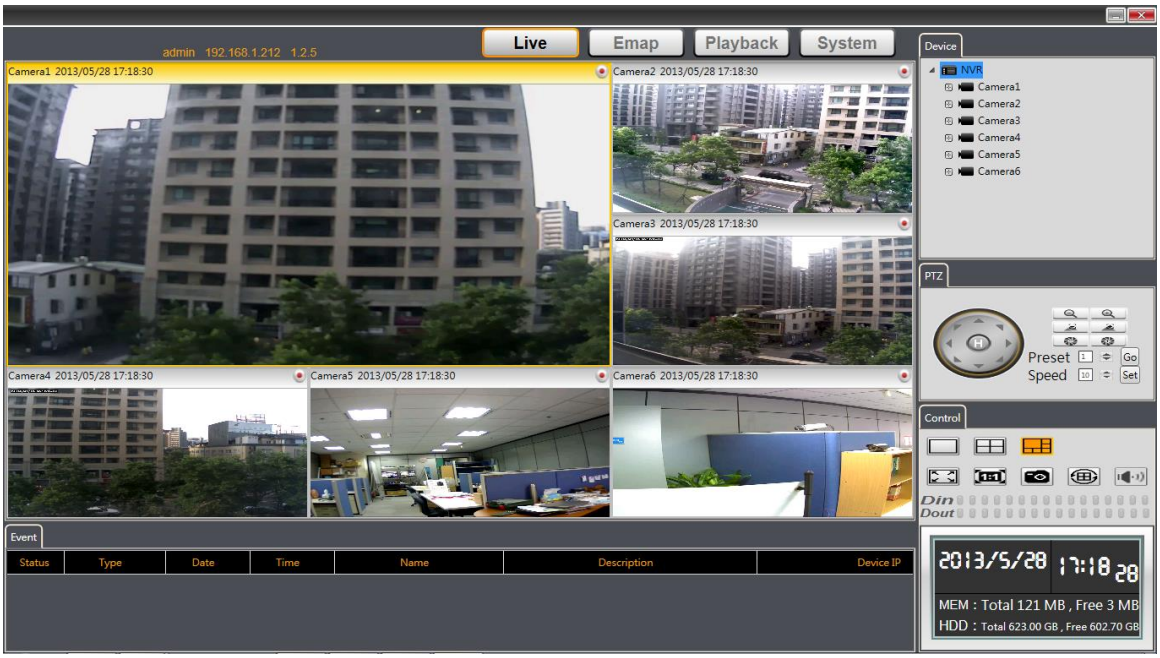
Live display screen



The entered NVR would be listed in the drop-down menu at the NVR Name field. You can select available NVR units from the drop-down menu during next time you log in and the system will fill in the related fields automatically and you only need to reenter the Password field to login your NVR unit.

3.2 Live Display Screen

Upon successful login, the live display screen will be shown.



System bar

In the system bar, you may see system information including the login user name, the address of the NVR unit you connect to and the following buttons:

Icon	Description
	Press to minimize Windows® remote client.
	Press to close Windows® remote client.
	Press to enter emap screen.
	Press to enter live display screen.
	Press to enter playback screen.
	Press to enter setup screen.

Camera view window

Camera view window displays camera title bar and its live video stream in a grid. The NVR supports different view modes for these grids, including single, quad, 9-split, 12-split, 16-split and 64-split view modes. Camera information will be shown on the camera title bar, it includes camera name, current date/time, motion alarm and recording status.

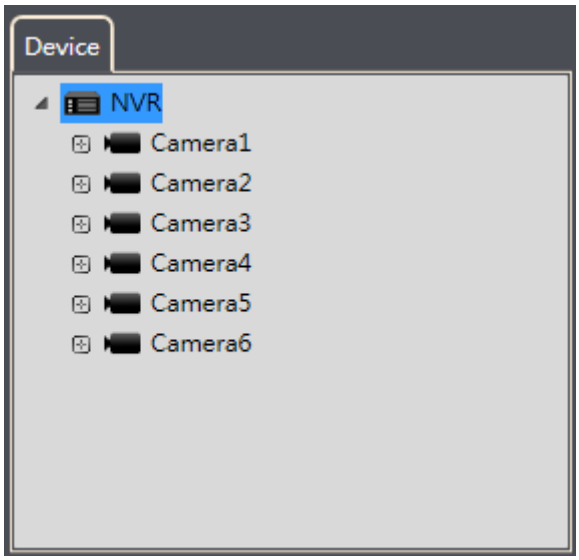
Icon	Description

/	Camera is being recorded/not being recorded.
	Camera detects motion.

The camera title box and bounding box of camera view window will be shown in white color. It will change to orange color when it becomes as the focus window. Double-click left mouse button on a given grid will enlarge its size and double-click right mouse button on a given gird will reduce its size. The grid will show the live video stream of each IP camera in the normal case. The following background images will appear when abnormal status happens:

Image	Description
	This channel is trying to connect to IP camera.
	No response from IP camera. (Network failure or IP camera disconnected.)
	This channel is unused.

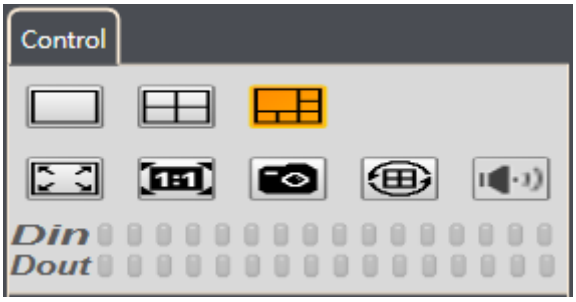
Device panel



Device panel shows all the connected devices of NVR. A device can be an NVR, IP camera or a network I/O module. The device node will be shown in red color in case of abnormal. Expanding each device will show subordinate devices, such as sensor input devices or alarm output devices on network I/O modules.

Icon	Description
	Normal/Abnormal CMS (CMS client only)
	Normal/Abnormal NVR
	Normal/Abnormal IP camera
	Normal/Abnormal video server
	Normal/Abnormal video channel
	Normal/Abnormal network I/O module
	Normal/Abnormal sensor input device
	Normal/Abnormal alarm output device

Control panel

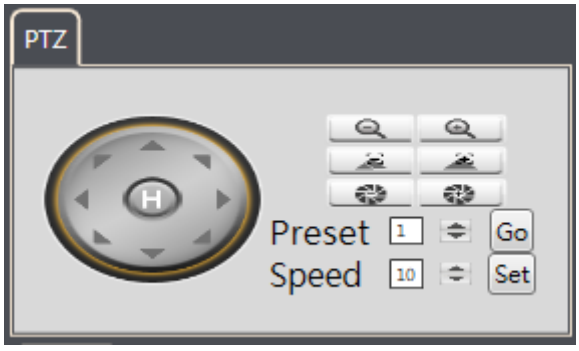


Control panel provides several buttons for control view mode and audio control. The status of network I/O modules is also displayed in panel. You can trigger outputs using this panel if network I/O module is connected.

Icon	Description

	Press to enter single view mode.
	Press to enter quad view mode.
	Press to enter 1+5 split view mode.
	Press to enter full screen view mode.
	Press to show video in original aspect ratio.
	Press to take a snapshot from focus camera view window.
	Press to auto-switch camera views. Press Up/ Down arrow to adjust the switch interval. (10 seconds as default, max. 30 seconds.)
	Listen to camera's audio
	Din reflects instant sensor input device status. stand for normal/abnormal status.
	Dout reflects instant alarm output device statu s. stand for normal/abnormal status.

PTZ panel

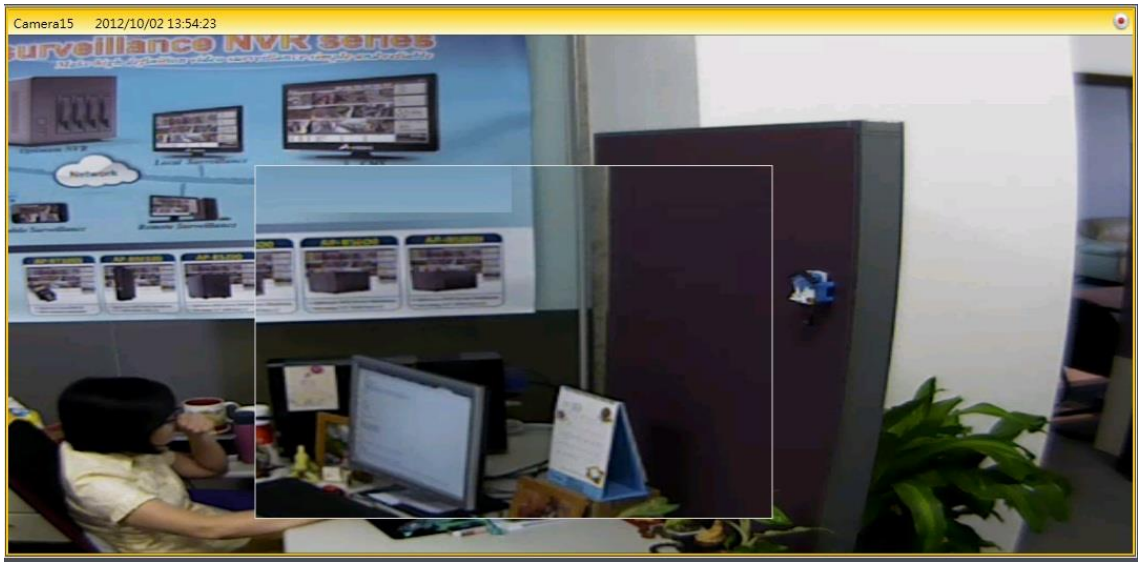


For PTZ camera, PTZ panel can control the direction, focal lengths, focus, iris, set/ go to preset and speed of camera. Through camera view window, you can see the live video when navigate PTZ cameras, adjust IRIS, Focus, zoom in and zoom out.

Icon	Description

	Press arrow(、 、 、 、 、 、 、 、 or) to adjust the TILT(up/down)/PAN(left/ right) position. Press to go the default position.
	Press / to zoom in/zoom out the PTZ.
	Press / to adjust the PTZ focus.
	Press / to adjust the PTZ iris.
Preset	Press Up/Down arrow to the preset point, and then press Set to set the preset point or Go to go to preset point.
Speed	Press Up/Down arrow to adjust the PTZ spe ed.

Digital magnifying glass



Digital magnifying glass allows you to zoom part of the video stream and enlarge it to display on the camera view window. Click and drag a highlight rectangle over a grid, move the rectangle to a interesting area using mouse and scroll the mouse wheel forward to zoom in and backward to zoom out. Right clicking on this grid will terminate the digital magnifying procedure.

Event panel

Status
No.
Type
Date
Time
Camera Name
Description
7 Video Loss 10/3/2012 6:42:31 PM 頻道_60_RELAY Camera60 Video Loss
6 Video Loss 10/3/2012 6:42:30 PM 頻道_52_RELAY Camera52 Video Loss
5 Video Loss 10/3/2012 6:42:29 PM 頻道_44_RELAY Camera44 Video Loss
4 Video Loss 10/3/2012 6:42:28 PM 頻道_36_RELAY Camera36 Video Loss
3 Video Loss 10/3/2012 6:42:26 PM 頻道_28_RELAY Camera28 Video Loss
2 Video Loss 10/3/2012 6:42:24 PM 頻道_20_RELAY Camera20 Video Loss

Event panel shows latest events from the NVR or its connected IP cameras, with their status, type, date/time, camera name, description and device IP information. New events are constantly appended to the top of the list and old events will be removed from the list.

Icon	Description
	Alarm happen and still exist
	Alarm happen but disappeared

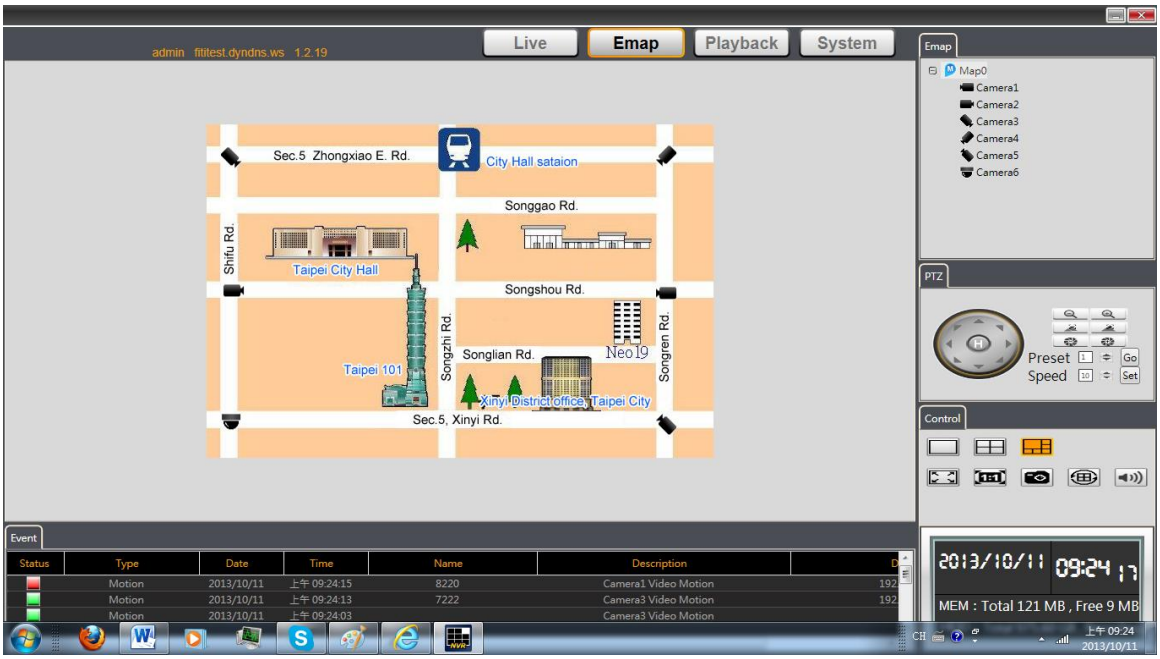
Currently supported event types include video motion, digital input, camera disconnected, video loss, storage full, hard disk failure, abnormal recording, backup failure, system boot-up, system shutdown and system configuration changed events

LED panel

The LED panel shows the current date/time, CPU usage, memory usage, HDD mode and status.

3.3 Emap Screen

Emap screen allows you to specify a multiple layers of maps to display the locations of NVRs, IP cameras and network I/O modules so administrator can have an idea of where a device is located and their current status. The device icons will be shown as red color on the map and Emap panel when an event is triggered. For a camera device, click camera icon will pop up associated live video window for live surveillance.



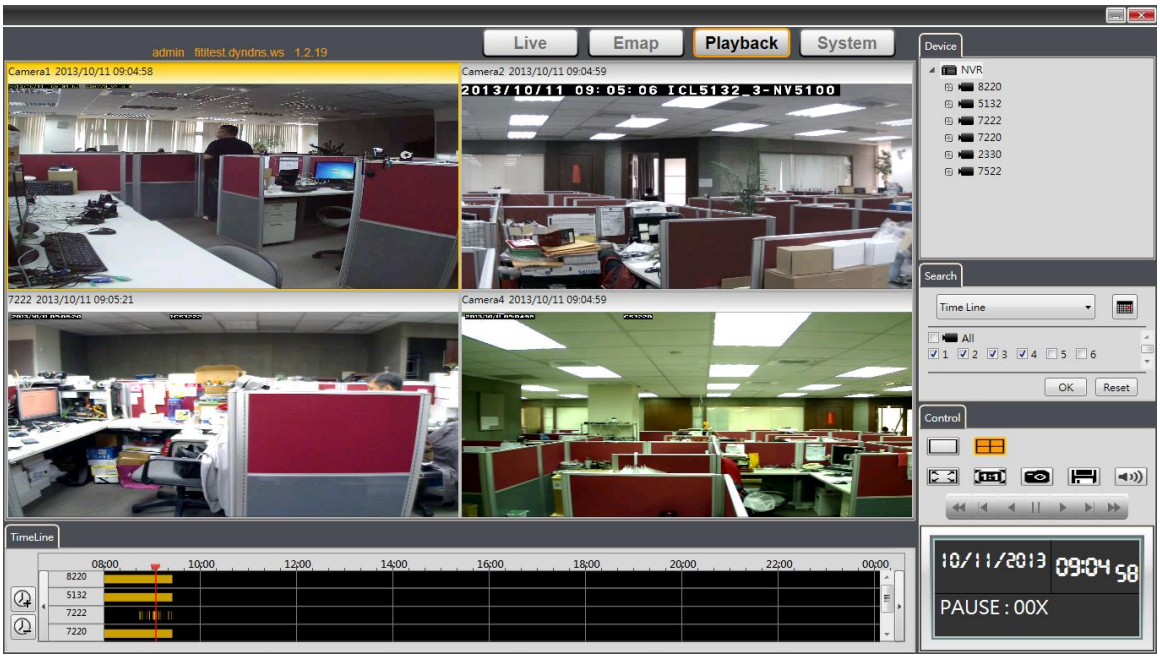
Emap panel shows all the connected maps and devices of NVR. A device can be an Emap, NVR, IP camera or a network I/O module. The device node will be shown in red color in case of abnormal. Expanding each device will show subordinate devices, such as sensor input devices or alarm output devices on network I/O modules.

Icon	Description
	Normal/Abnormal Map
	Normal/Abnormal NVR
	Normal/Abnormal IP camera
	Normal/Abnormal video server
	Normal/Abnormal video channel
	Normal/Abnormal network I/O module
	Normal/Abnormal sensor input device
	Normal/Abnormal alarm output device

3.4 Playback Screen

Most of the functions are the same as those seen in live display screen, but there are some differences in the playback screen.

Playback screen



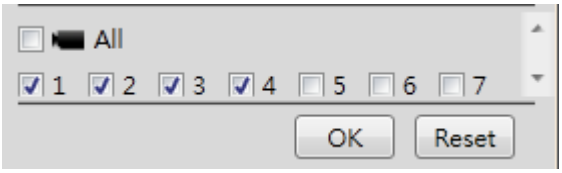
Search panel

There are several different types of search methods that can be performed on the NVR unit. The basic one is timeline search involves selecting the date, camera, time and then play.

1. Select Time Line search from the drop-down menu within the search panel.

2. Click the Calendar button to pop up or pop down a calendar for selecting a date.

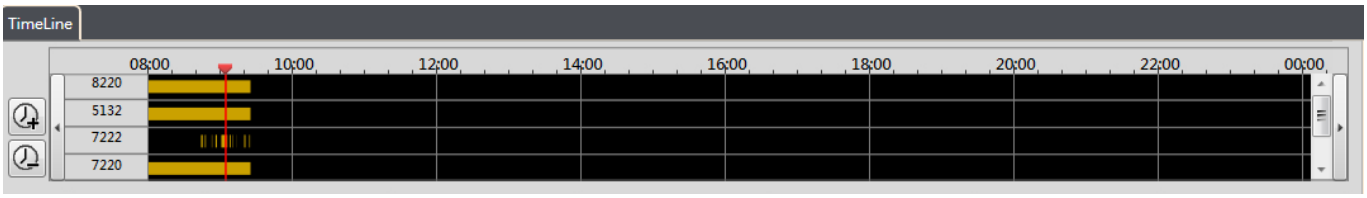
3. Select one, more or all cameras.



4. Click OK to begin search.

Time line panel

Select a time by dragging the red bar or clicking the left and right arrows to the right of the time display.



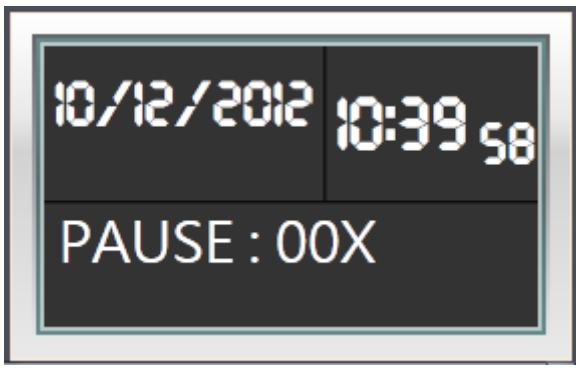
The and icons can zoom in and out the timeline scale.

And then the video can be played forwards, backwards, or frame-by-frame as following:

Playback control

Icon	Description
	Press to increase backward speed at 1x, 2x, 4x, 8x and 16 x speeds.
	Press to back one I-frame.
	Press to rewind recorded video.
	Press to pause recorded video.
	Press to play recorded video.
	Press to forward one frame.
	Press to increase forward speed at 1x, 2x, 4x, 8x and 16 x speeds.

LED panel



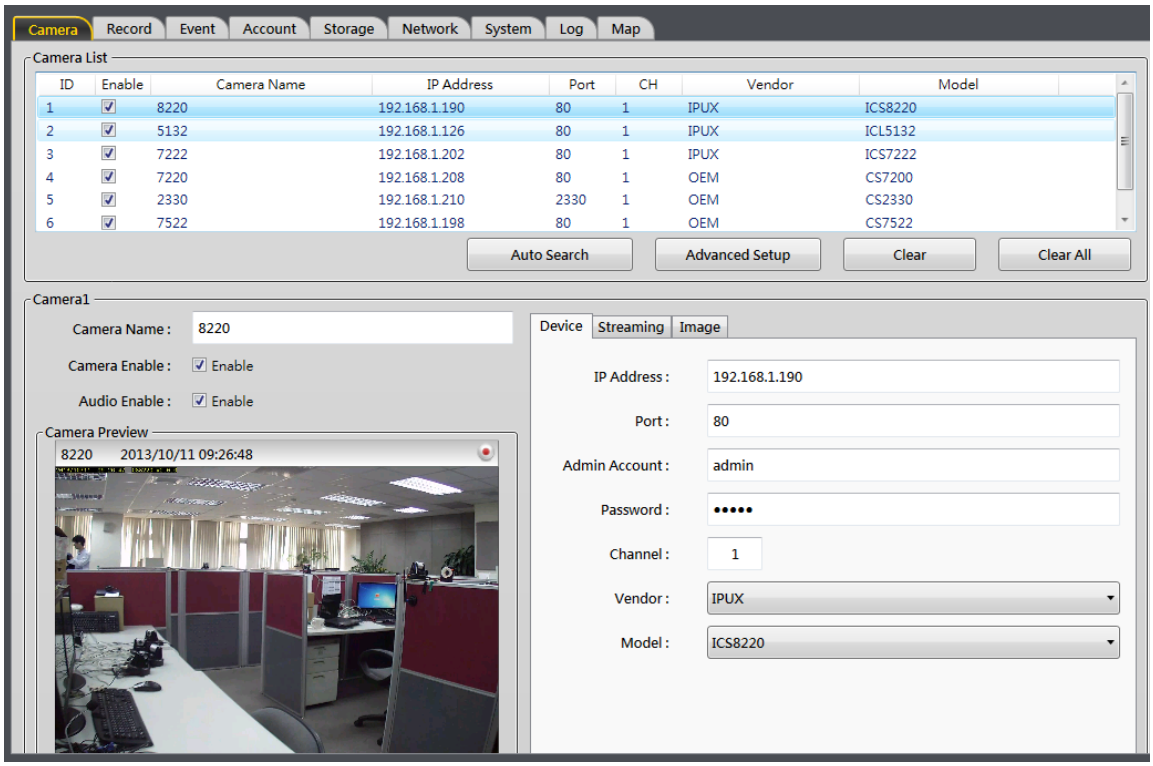
The LED panel will show the playback date/time and the play control information when in playback screen.

Chapter 4 System Setup

The Windows remote client allow you to optimize your NVR unit by adjusting settings like camera, record, event, account, storage, network, system, DIO, log and license. It is extremely important that you setup your NVR correctly.

4.1 Camera Setup

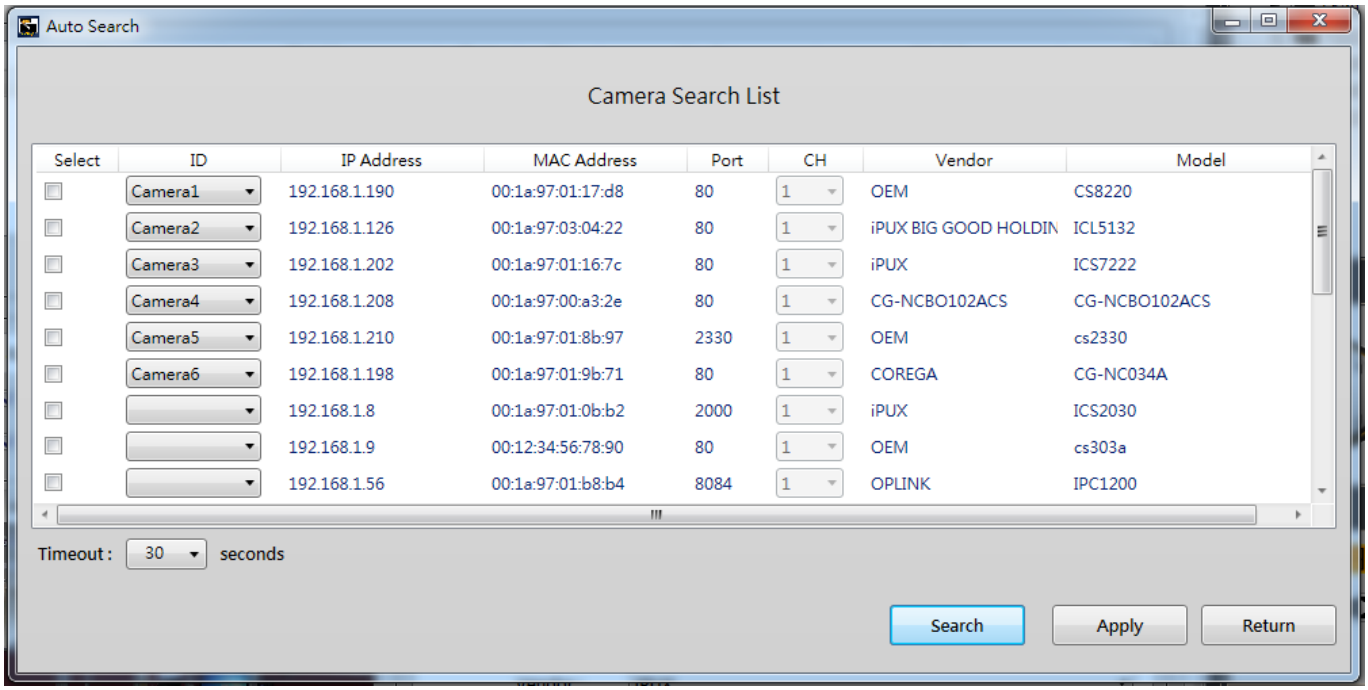
Camera setup page



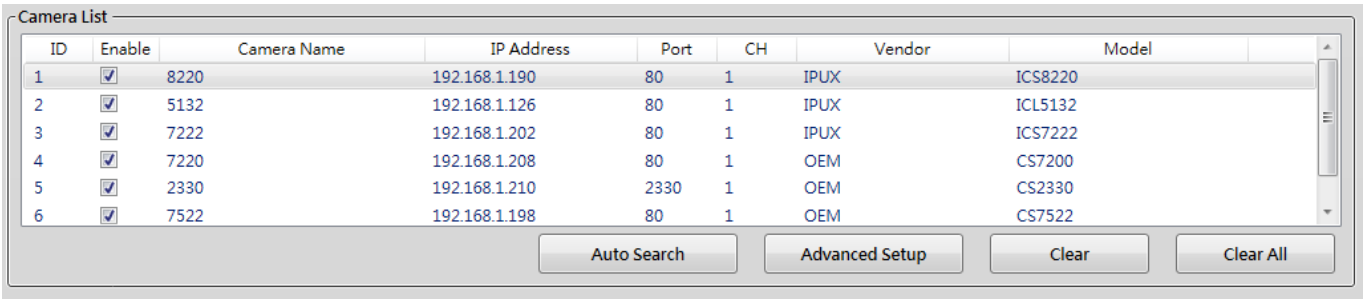
Cameras can be added to Camera List in two ways: automatic or manual.

Automatic add camera

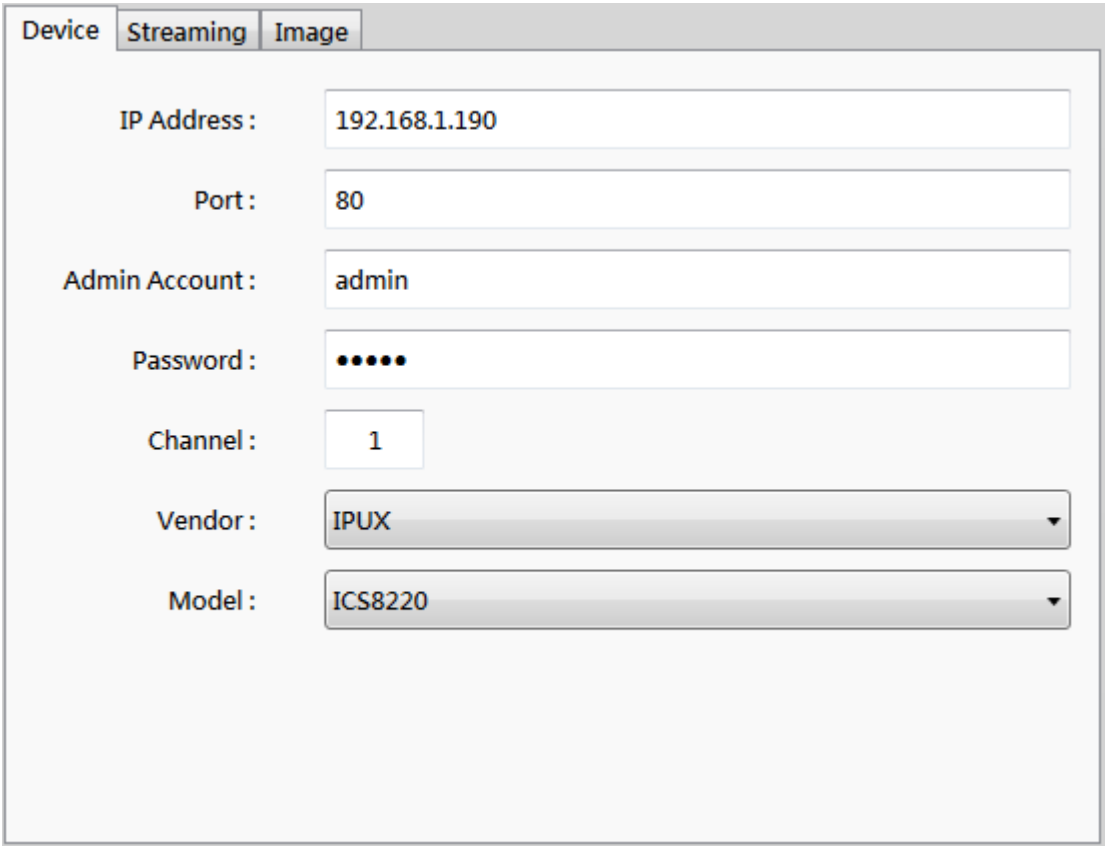
1. Click Auto Search button to bring up the Auto Search popup.



2. Click Search button to list all the currently available cameras.
3. Select the check box next to the desired camera.
4. Specified the channel ID(of video server) for the desired camera.
5. Click Apply button to apply the change or Return button to cancel the change.
6. Click an available camera on the Camera List.



7. Enter the Admin Account and Password.



8. Click Apply button to apply the change or Cancel button to cancel the change.

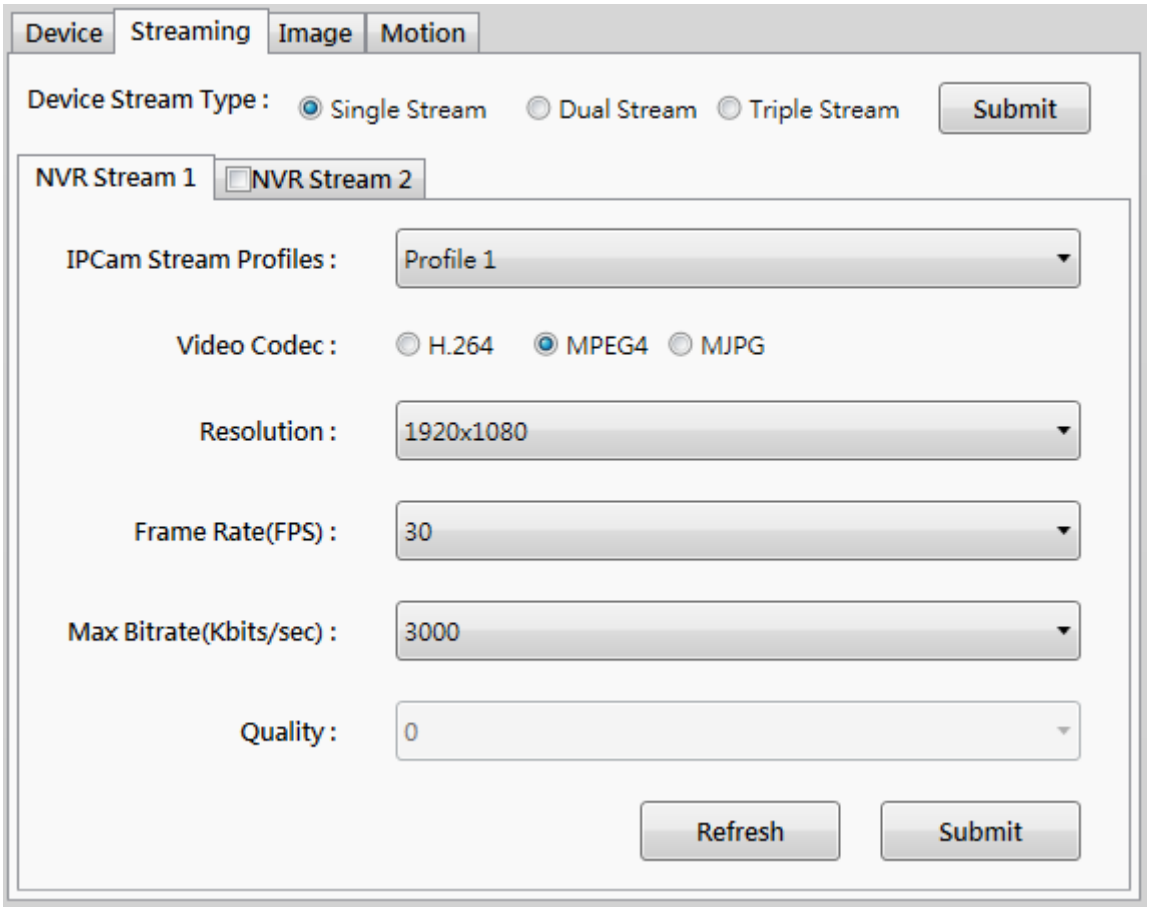
Manual add cameras

1. Click an desired camera on the Camera List.
2. Enter the Camera Name.

3. Check Camera Enable and Audio Enable to active the video and audio channel
4. Enter the IP Address and Port on the Device Column.
5. Enter the Admin Account and Password.
6. Select the Vendor and Model for your IP camera or click Detect button to obtain it automatically.
7. Click Apply button to apply the change or Cancel button to cancel the change.

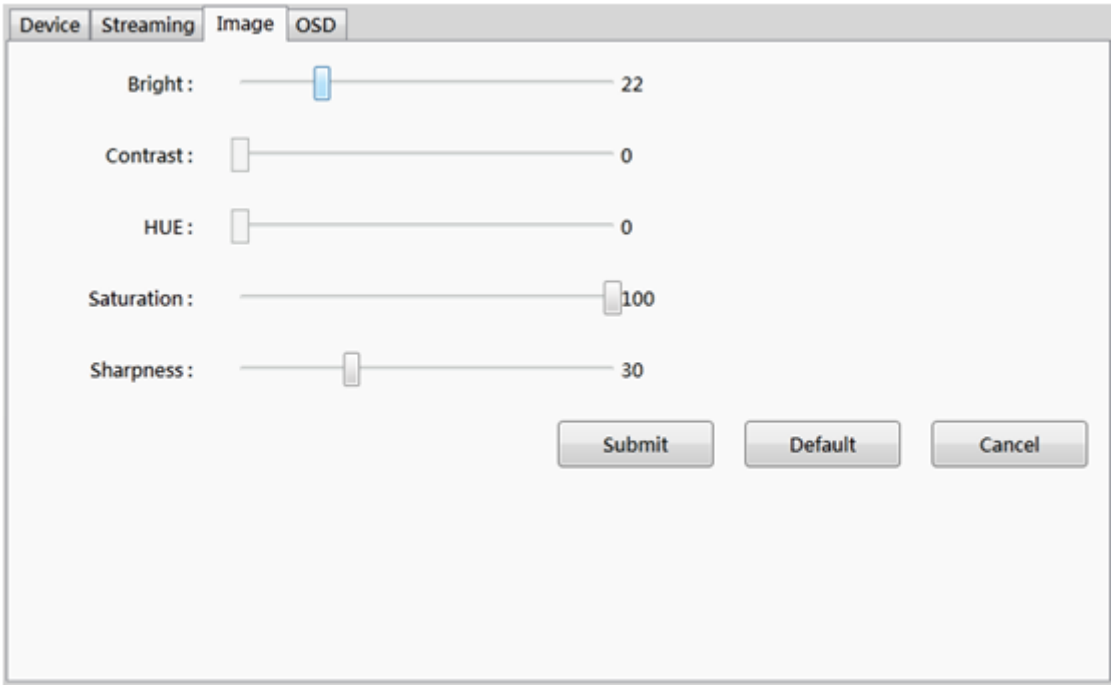
Camera streaming setting

It defines how IP camera videos should be streamed to NVR unit. Most IP cameras are capable of providing multiple video streams at the same time. We call those video streams as stream profile. Steam profile defines which video codec(H.264, MPEG-4 or MJPEG), resolution, frame rate, bit rate/quality will be pulled from the IP camera. The available stream profiles will vary by camera. By default, NVR pull only one stream (NVR stream 1) from IP camera. You can specify different stream profiles for NVR stream 1 here.



1. Specify the number of video streams are provided by IP camera at the same time
2. Select a stream profile from the stream profiles drop-down menu for NVR Stream 1.
3. Change the default video codec (H.264, MPEG-4 or MJPEG), resolution, frame rate, bit rate/quality setting if needed. Click Submit button to save your changes to IP camera. Note: The available values will vary by camera.
4. Click Apply button to apply the change or click Cancel button to cancel the change.

Camera image setting



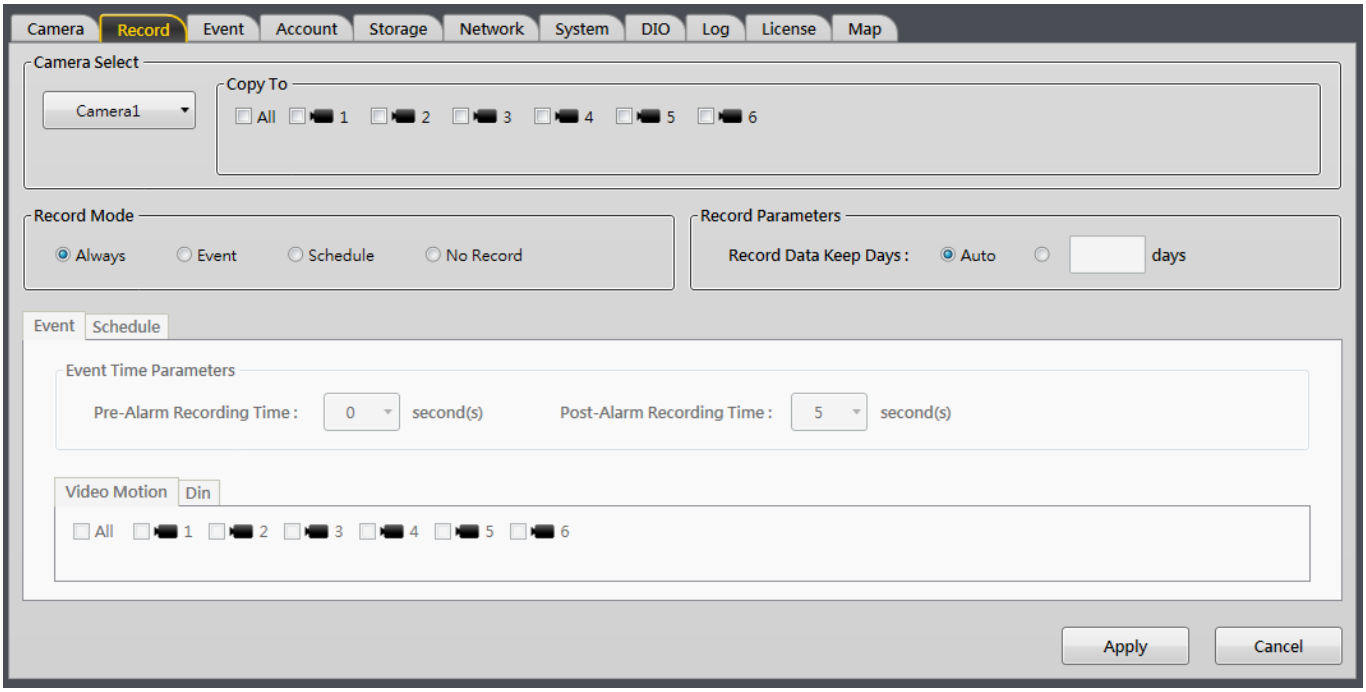
Clicking the Image tab and then adjust the following sliders to change the camera image:

1. Bright: move the Bright slider bar to the right or left to adjust the brightness.
2. Contrast: move the Contrast slider bar to the right or left to adjust the lighting difference between dark and light areas of the image.
3. Hue: move the Hue slider bar to the right or left to adjust the color cast of the image.
4. Saturation: move the Saturation slider bar to the right or left to adjust the overall color intensity of the image.
5. Sharpness: move the Sharpness slider bar to the right or left to adjust the edge contrast of the image.
6. Click Submit button to save your changes to IP camera.
7. Click Default button to reset it to IP camera's default.
8. Click Cancel button to cancel the change.
9. Click Apply button to apply the change or click Cancel button to cancel the change.

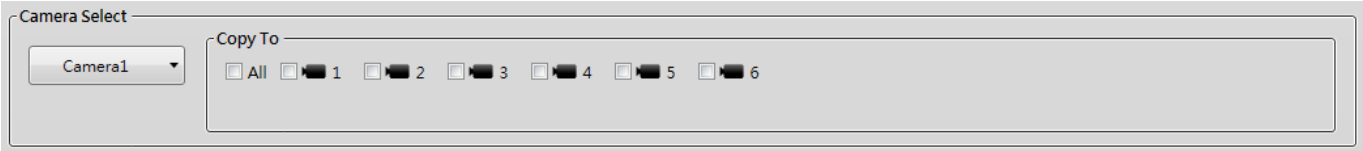
4.2 Record Setup

The record setup page allows you to create different recording schedules based on the day, time, and type of recording desired.

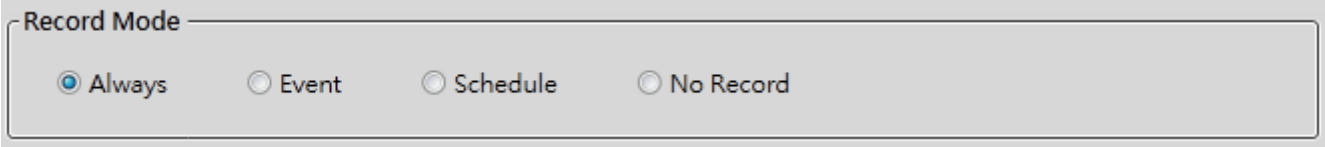
Record setup page



1. Select a camera for recording.

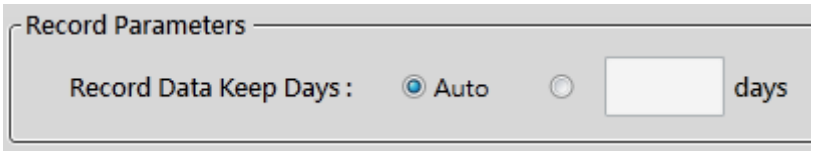


2. Select Copy To Cameras for copy current settings to other cameras.
3. Select Always, Event, Schedule or No Record mode.

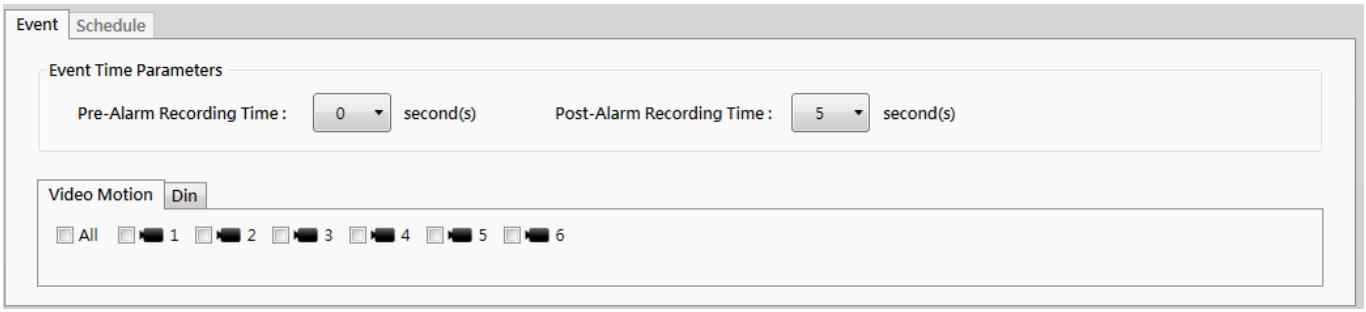


Note: For event record mode, the camera will begin recording when NVR detects motion o from cameras (can be the same or other cameras) or digital input of network I/O modules.

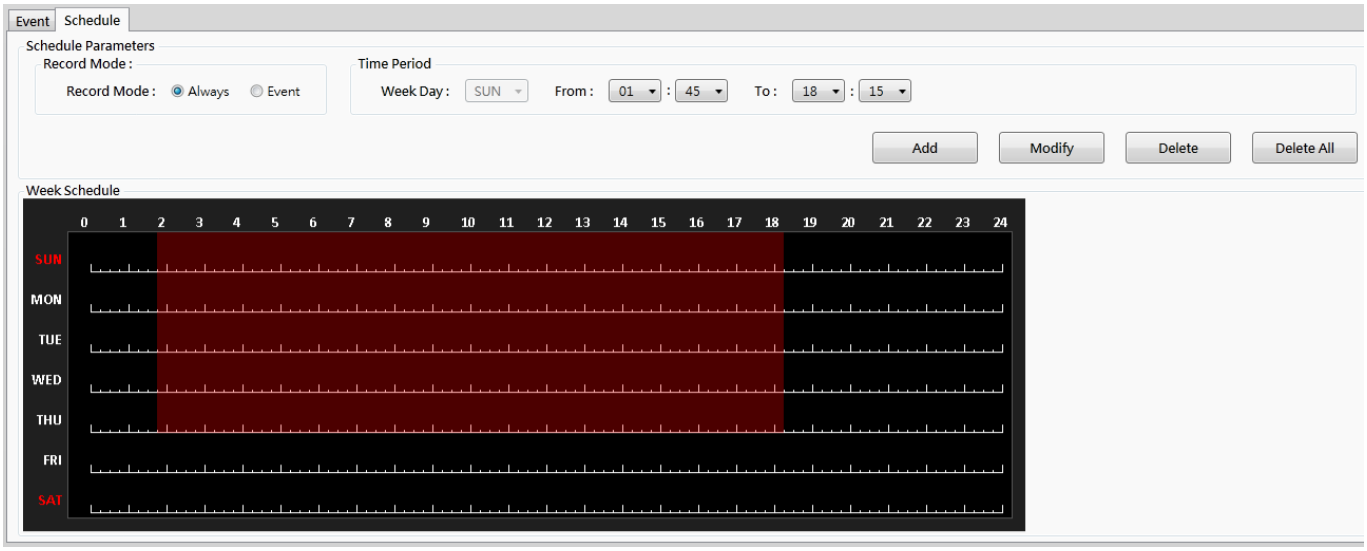
4. Specify how many days of record data are going to be kept in storage, which will not be removed when recycling record data.



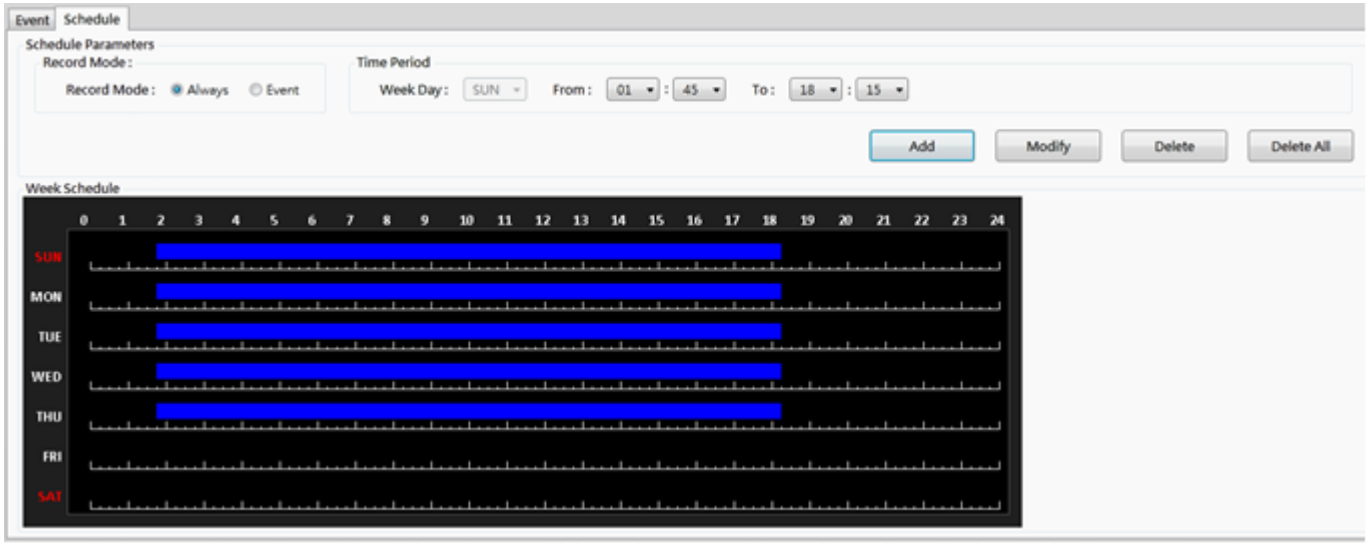
5. Event record mode:
   Specify Pre-Alarm Recording time (maximum 30 seconds), Post-Alarm Recording time (maximum 30 seconds) and event sources (motion or digital input).



6. Schedule record mode:
   Press left mouse button, drag a red rectangle over the Week Schedule area to specify a week day/time frame and then release the mouse button.



Click the Add button to fill blue bars within the time frame for recording.



Click any blue bar (the blue bar will be shown with yellow border), click the Modify button and then change the from/to time for schedule modification.

Click any blue bar (the blue bar will be shown with yellow border), click the Delete button to remove the schedule.

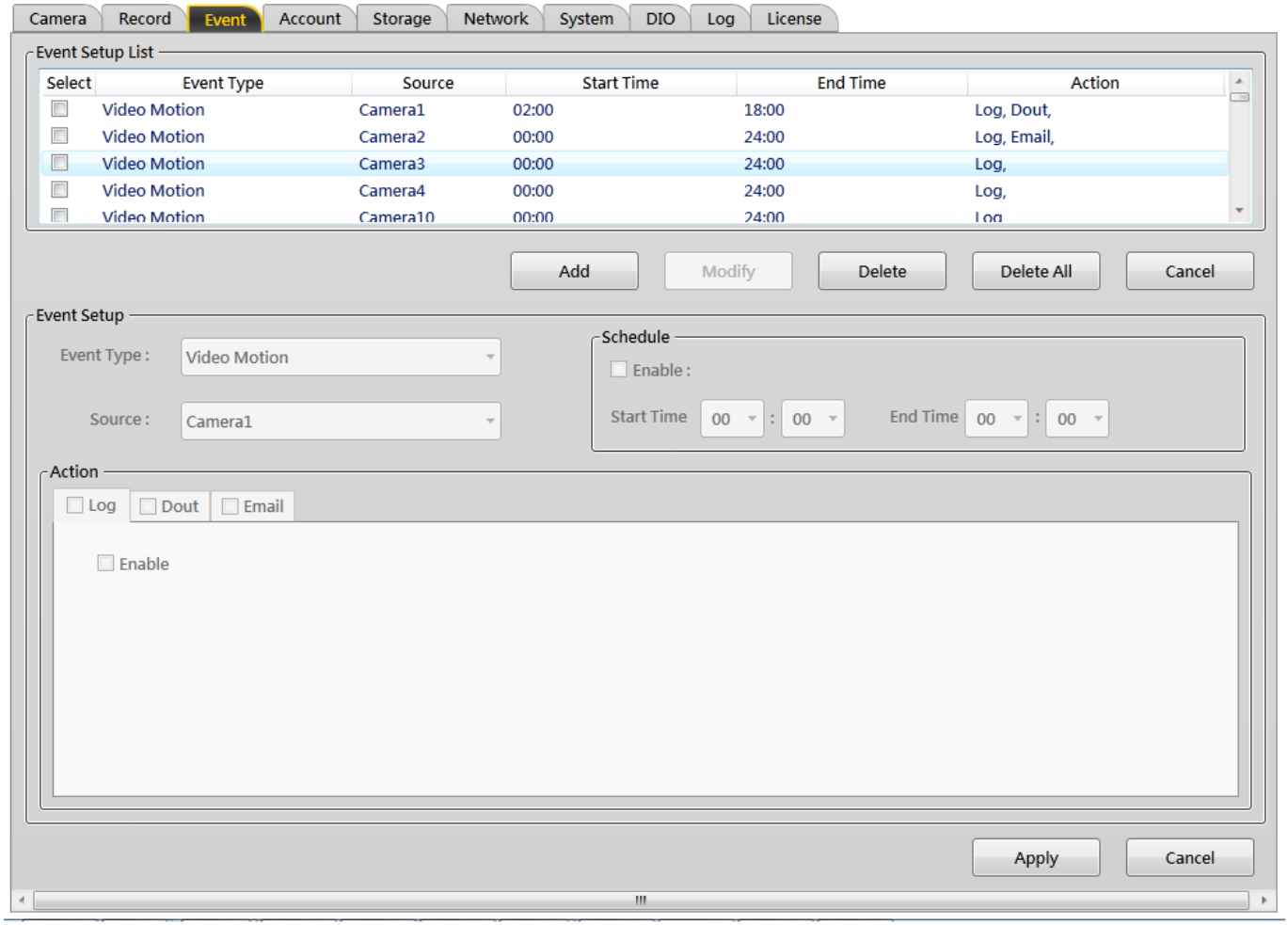
Click the Delete All button to remove all schedules.

7. Click Apply button to apply the change or click Cancel button to cancel the change.

4.3 Event Setup

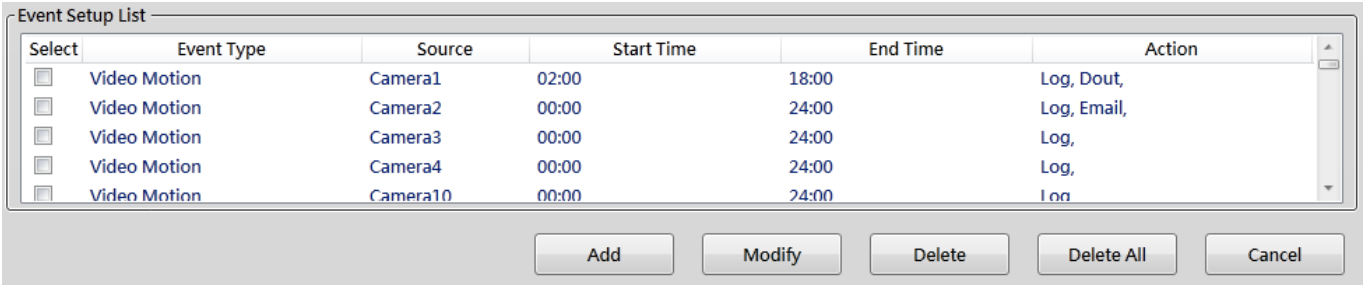
The NVR unit can handle events of various types. They can be video motion, camera disconnected, video loss and digital input, but also system events like storage full, hard disk failure, abnormal recording, backup failure, system boot-up, system shutdown and system configuration changed events.

Event setup page

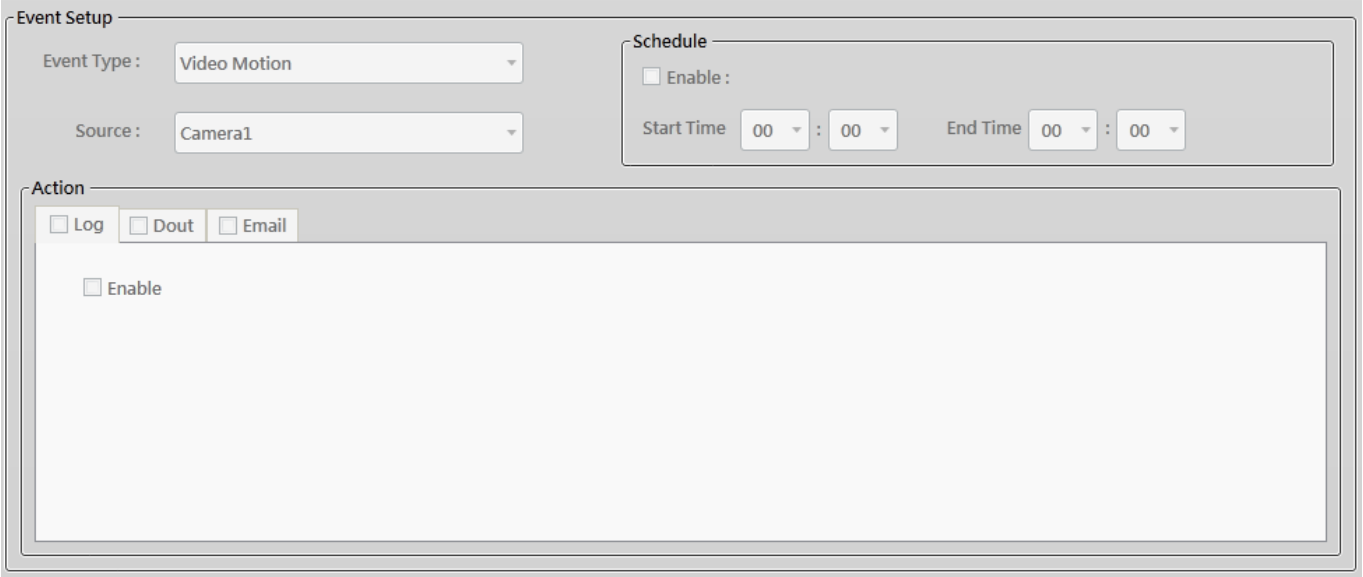


Add an event

1. Click Add button.



2. Select the Event Type from the drop-down menu.



3. Select the Source in case of video motion, camera disconnected, video loss and digital input events.
4. Enable the Schedule and specify the start/end time if the event can only be triggered within specified time.
5. Specify the event actions including event log, digital output (the delay time and duration time can be specified) and email alert with attached recording video (the clip length can be specified).
6. Click Apply button to apply the change to Event Setup List or click Cancel button to cancel the change.

Modify an event

1. Select an Event Setup on the Event Setup List column.
2. Click Modify button
3. Modify the Schedule and Action columns setting.
4. Click Apply button to apply the change to Event Setup List or click Cancel button to cancel the change.

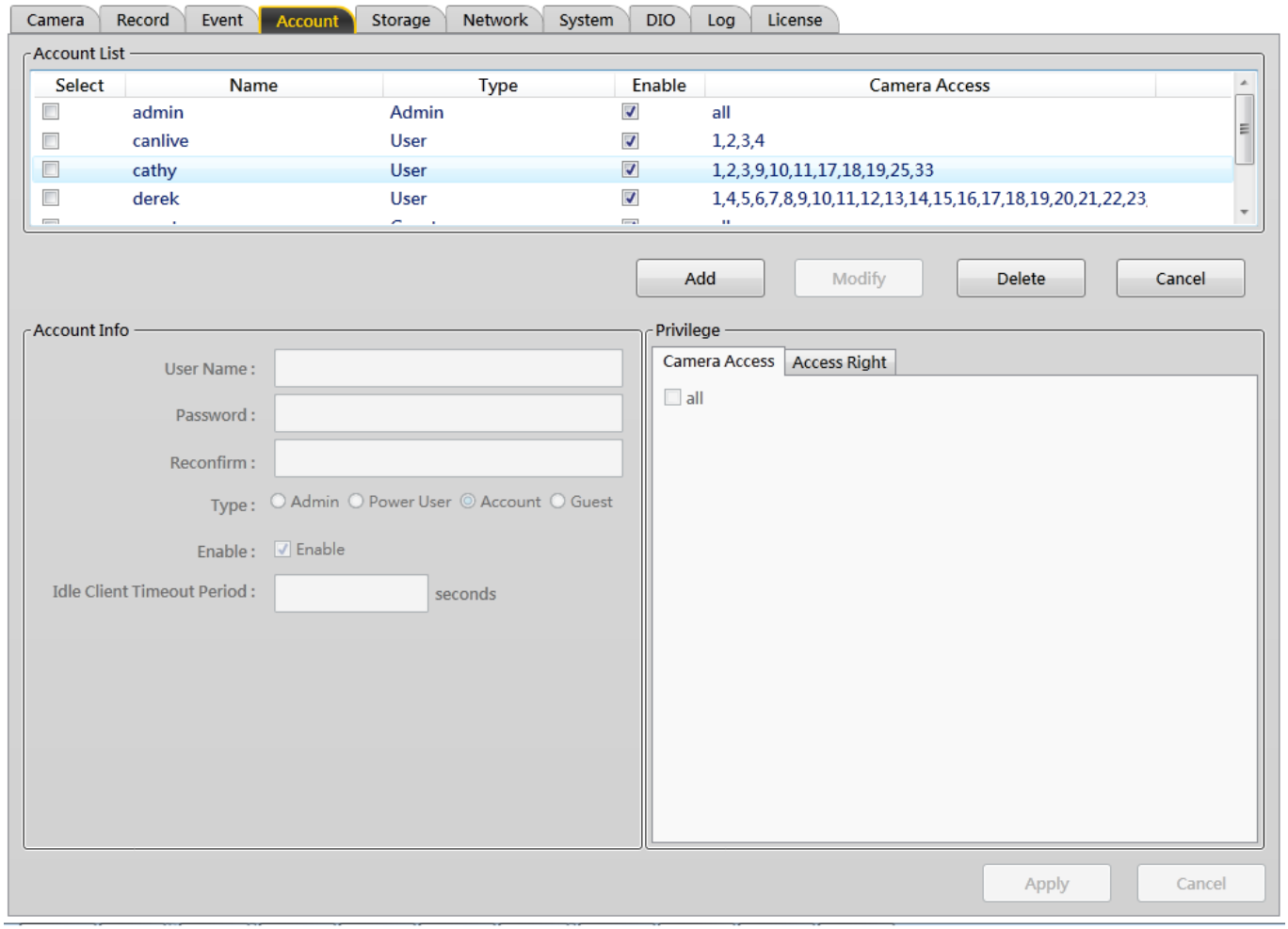
Delete an event or Delete all events

1. Select an Event Setup on the Event Setup List column.
2. Click Delete button or Delete All button
4. Click Apply button to apply the change to Event Setup List or click Cancel button to cancel the change.

4.4 Account Setup

The account setup is set to provide individual user role-based permissions, including access rights on specific channels while live view, playback, export, backup, PTZ control, DI/DO control, password change, Emap access, view/change setup. You can setup user accounts with different permissions. The NVR supports four types user account:

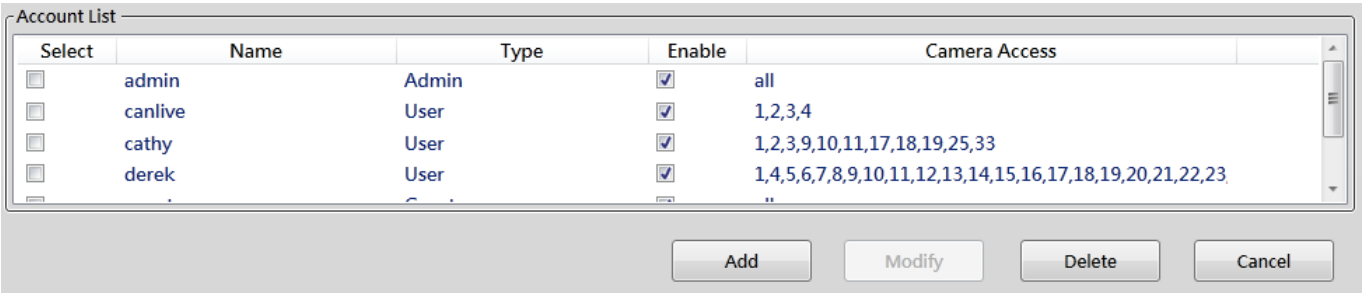
Account setup page



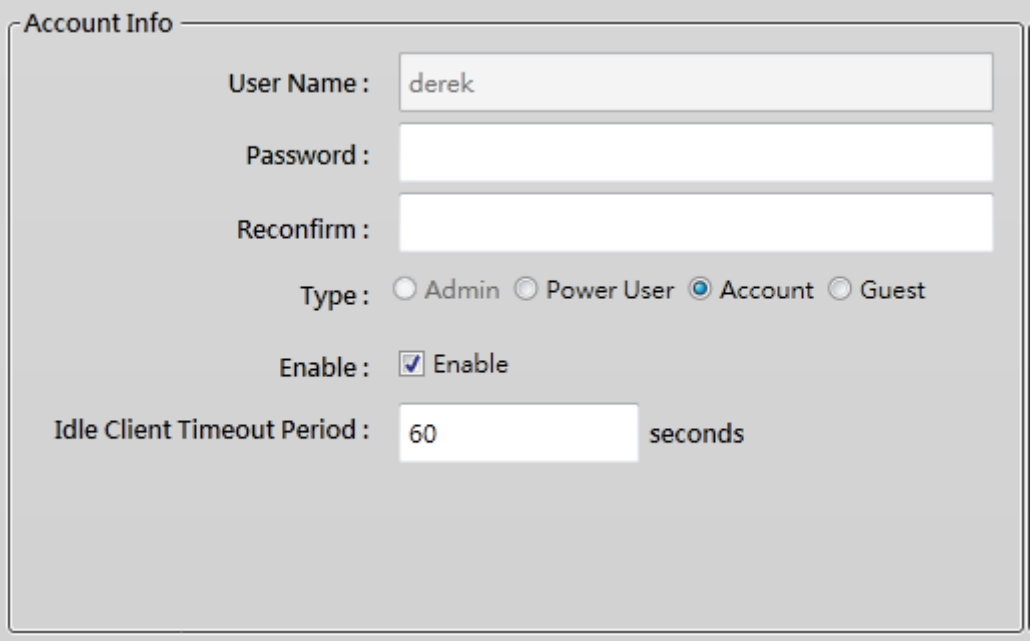
1. Administrator: the administrator account is “admin”. (default password: 1234). It has the rights of live view, playback and setup. The admin account cannot be deleted. They have the rights to create and delete super users, normal users and guest users, and change their passwords.
2. Power user: power users can be granted the same rights as administrator or just be granted partial administrator rights. They can be deleted by administrator.
3. Normal user: normal users can be granted the rights of live view, playback, change password and view setup. They have no administration authority.
4. Guest user: guest users can be granted the rights as normal users except the right of change password.

Add a user

1. Click Add button.

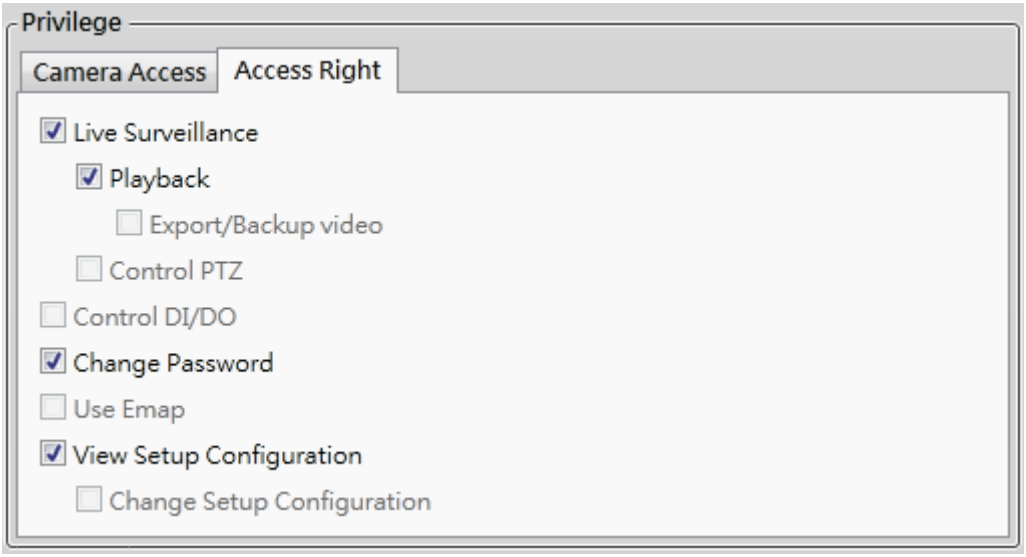


2. Fill in User Name, Password, Reconfirm (password must be typed twice for confirmation purposes), Type (administrator, power user, normal user or guest user), Enable (check this box to enable this account), and idle client timeout period (disconnected if remote client idle more than this period) information for the new account.



3. Select channels that the user has access rights.

4. Specify the permissions for specified channels including live view, playback, export, backup, PTZ control, DI/DO control, password change, Emap access, view/change setup for the specified channels.



5. Click Apply button to apply the change to Account List or click Cancel button to cancel the change.

Modify a user

1. Select a user on the Account List column.
2. Click Modify button.
3. Modify the related account information setting.
4. Click Apply button to apply the change to Account List or click Cancel button to cancel the change.

Delete a user

1. Select a user on the Account List column.
2. Click Delete button.
3. Click Apply button to apply the change to Account List or click Cancel button to cancel the change.

4.5 Storage Setup

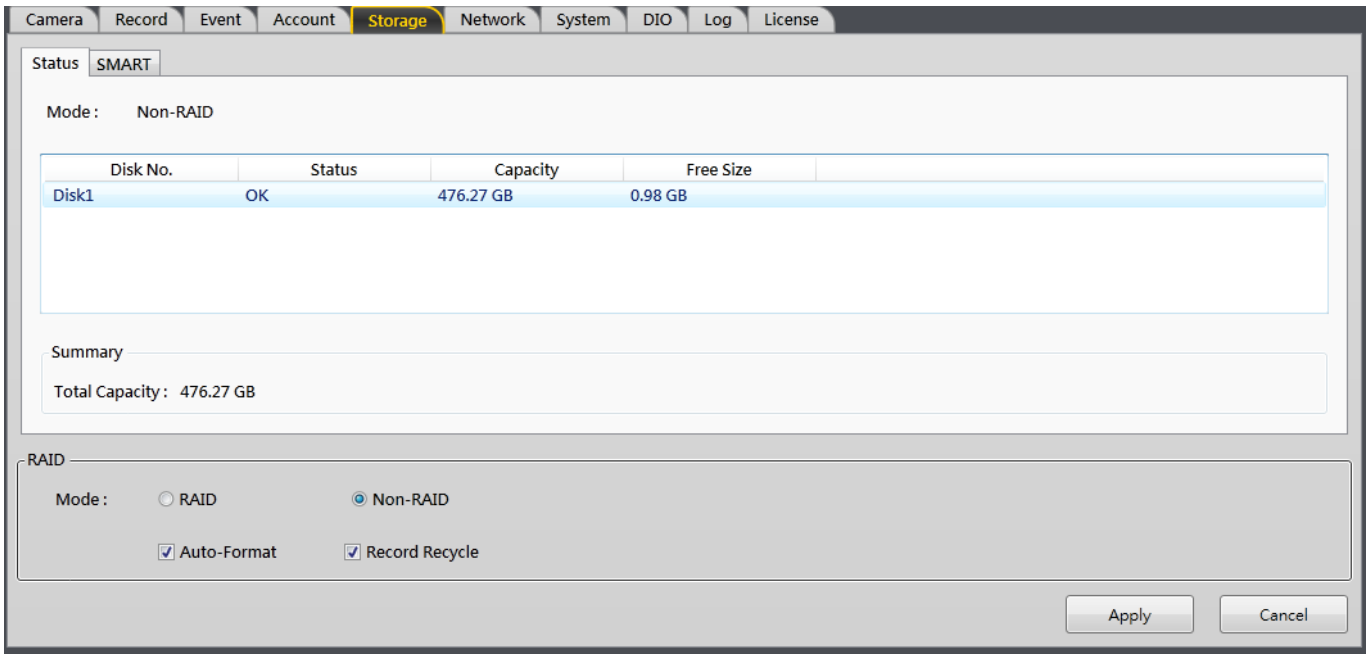
Storage setup page shows all information related to HDD Drives installed on the NVR, it including:

1. HDD mode: RAID or non-RAID mode(independent HDD mode).

The RAID level depends on the number of HDD installed if in RAID mode:

HDD number	Mode
2	RAID-1

Storage setup page



Note:

A. RAID is short for redundant array of independent (or inexpensive) disks. It is a category of disk drives that employ two or more drives in combination for fault tolerance and performance.

B. RAID-1 (Mirroring and Duplexing): Level 1 provides twice the read transaction rate of single disks and the same write transaction rate as single disks.

2. Show all installed hard disks, their status, capacity and free size.

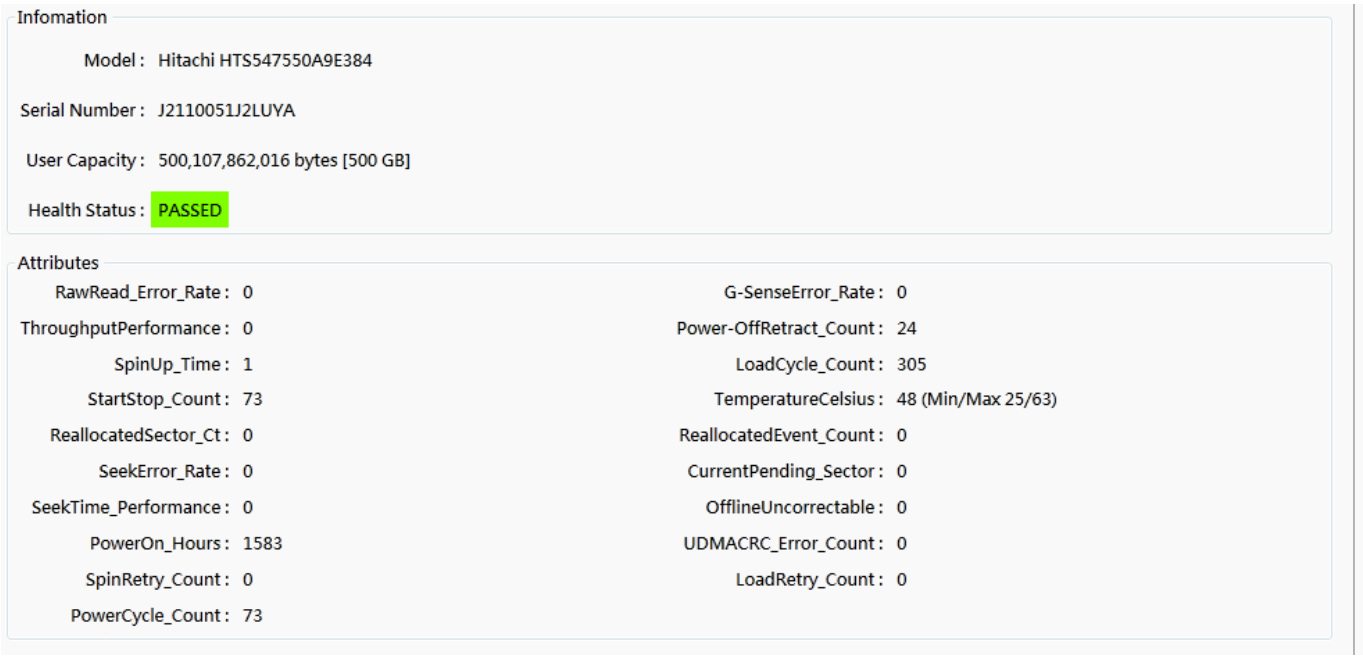
3. The summary column will show the total storage capacity, status and RAID rebuild progress in case of rebuild RAID.

Change HDD mode

1. Select independent mode or RAID mode.
2. Check Auto-Format to format any new installed or crashed HDD when boot NVR.
3. Check Record Recycle to enable recycling record data if HDD full.
4. Click Apply button, the system will reboot immediately to apply the change or click Cancel button to cancel the change.

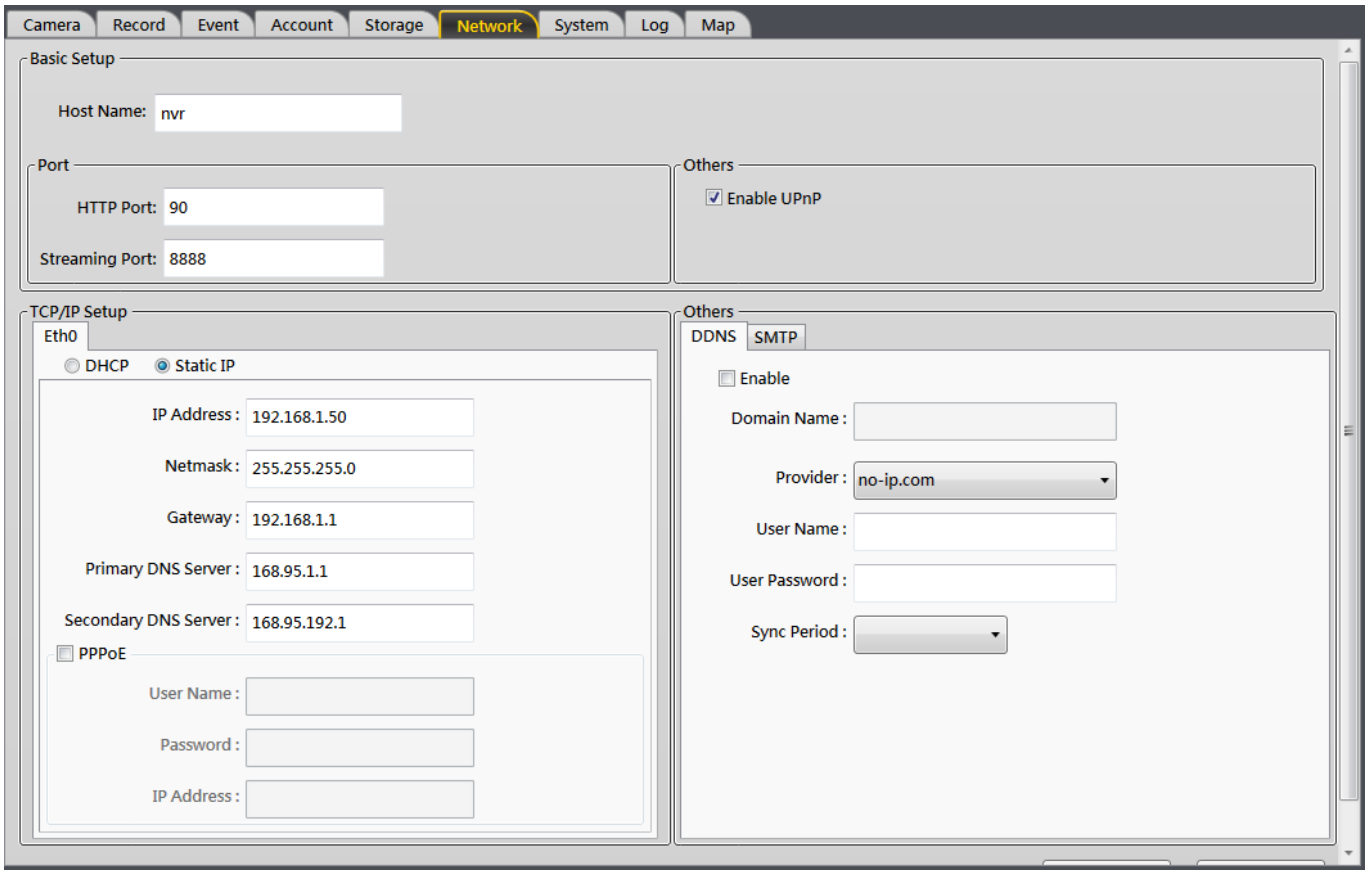
HDD SMART

Select a HDD tab to monitor the health, temperature, and status of the hard disk drives by the S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology).



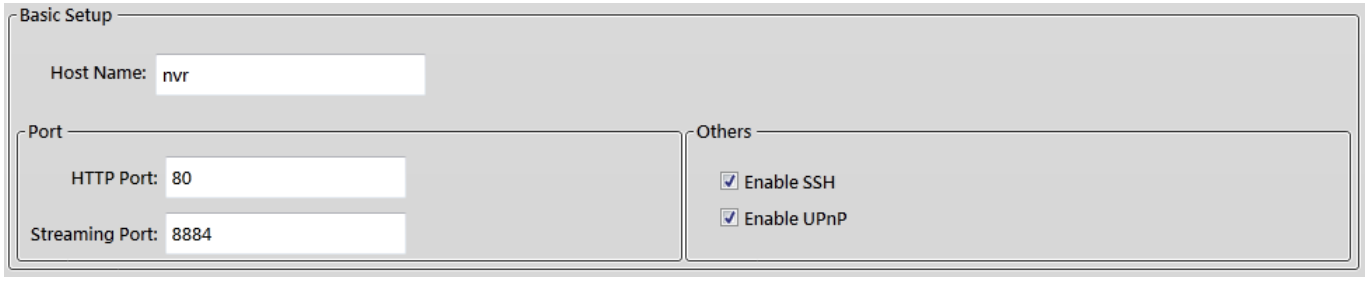
4.6 Network Setup

Network setup page



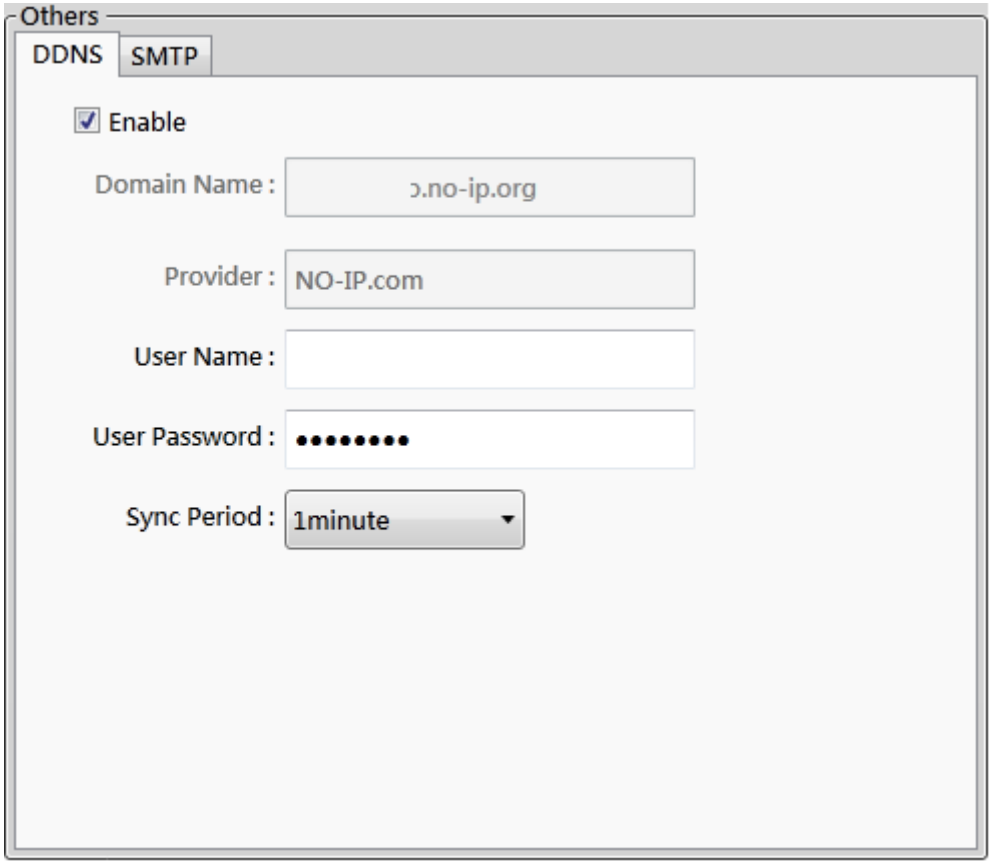
To connect NVR to LAN or Internet, you need to:

1. Enter the NVR Host Name, HTTP port (default is 80), Streaming port (default is 8888)



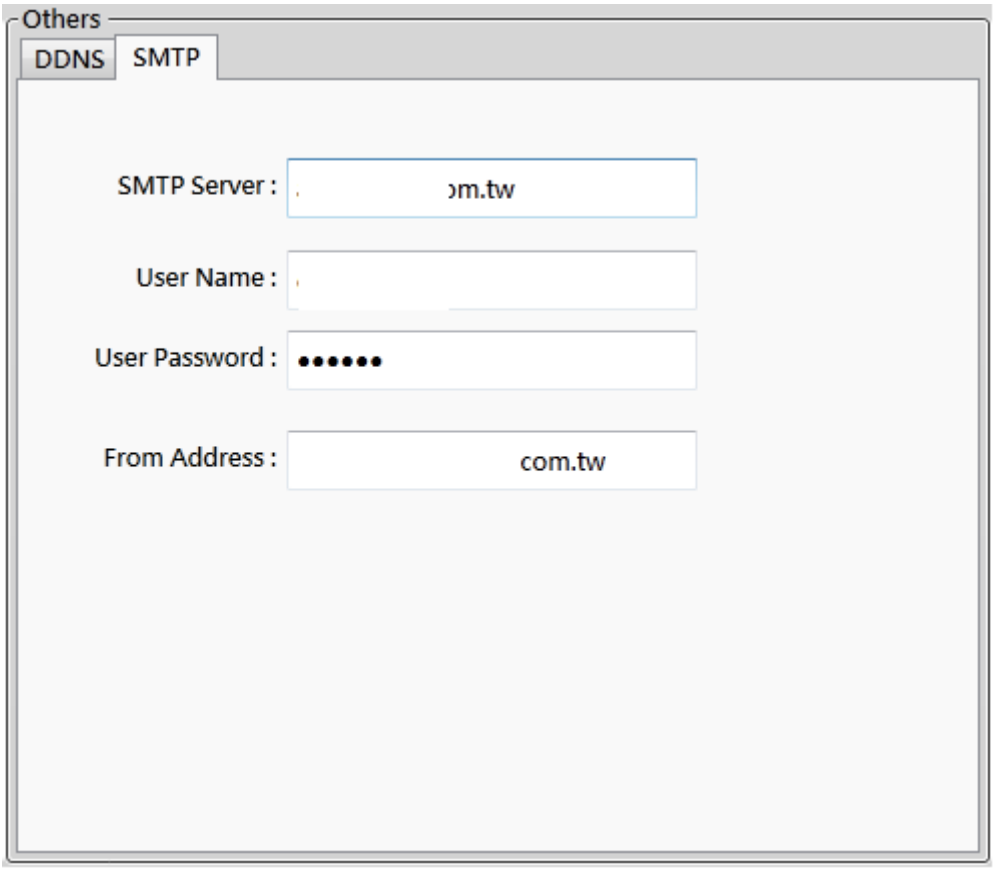
2. Enable SSH (for remote maintenance purpose).
3. Enable UPnP(will show NVR information in Network of your Windows PC)
4. Select one of the following mechanisms to configure the Ethernet channels (eth0) of NVR:
   A. DHCP IP setting: obtain IP Address, Netmask, Gateway, Primary DNS Sever and Secondary DNS Server automatically via DHCP server (the IP Address and Netmask will default to 192.168.1.200, 255.255.255.0 for eth0 in case of no DHCP server existed)
   B. Static IP Setting: configure IP Address, Netmask, Gateway, Primary DNS Sever and Secondary DNS Server manually.
   C. PPPoE setting: Enter User Name and Password provided by ISP. The system will return the IP assigned by ISP in case of dialup successfully.

5. DDNS(Dynamic Domain Name Server) allows you to connect NVR with dynamic IP address. You can refer to http://www.no-ip.com/services/managed_dns/free_dynamic_dns.html and register an account, and then:



   i. Enter your account in User Name field.
   ii. Enter your password in User Password field.
   iii. Select the Sync Period to setup interval for IP/DDNS synchronization.
   iv. The domain name field will return your DDNS name assigned by no-ip when connect successfully.

6. Configure your SMTP here to send event notifications to the E-mail address specified in Event:



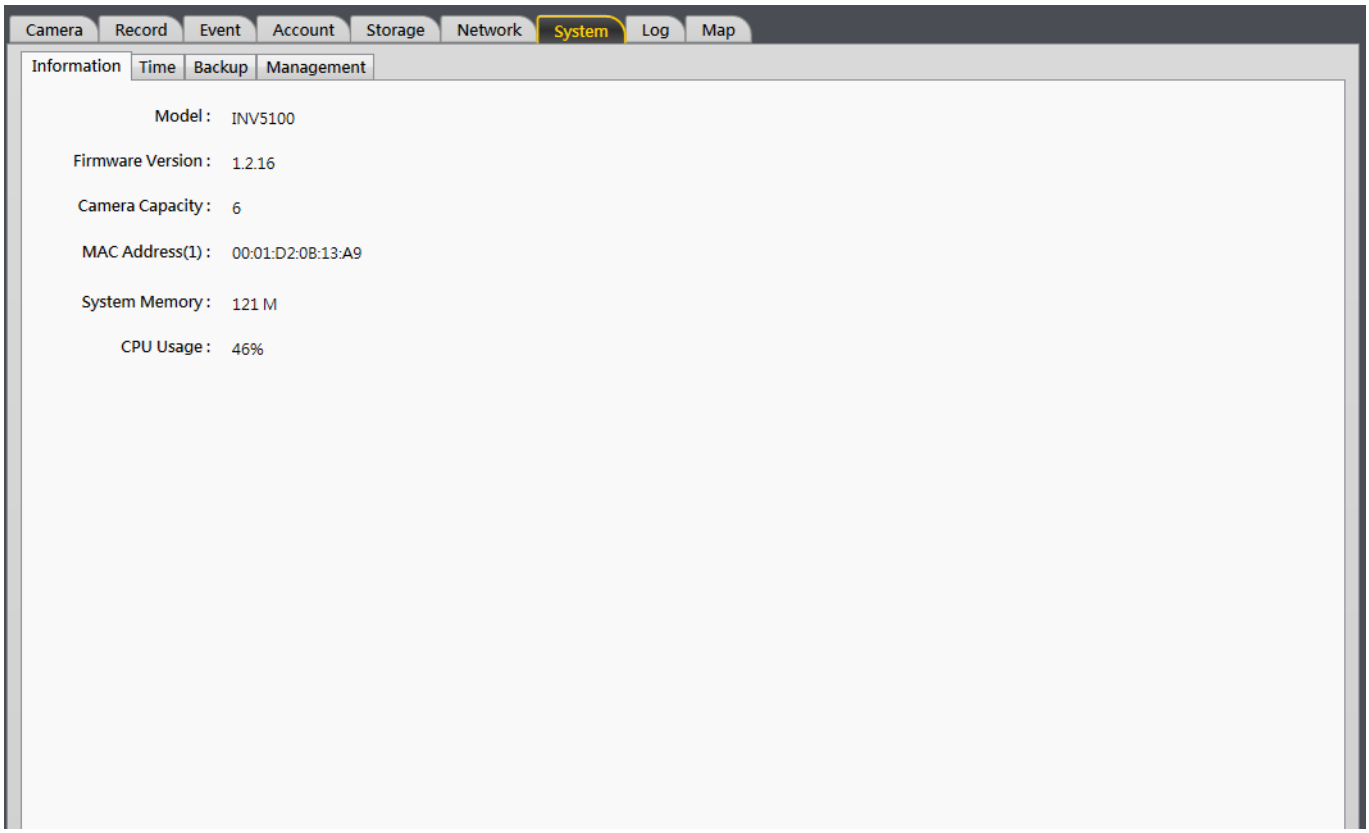
i. Enter your SMTP server.
ii. Enter User Name of SMTP server
iii. Enter User Password of SMTP server
iv. Enter the sender address of event notifications

7. Click Apply button to apply the change or click Cancel button to cancel the change.

4.7 System Setup

System setup page is used to show system information, modify time zone/system time, backup data, control local console and system maintenance.

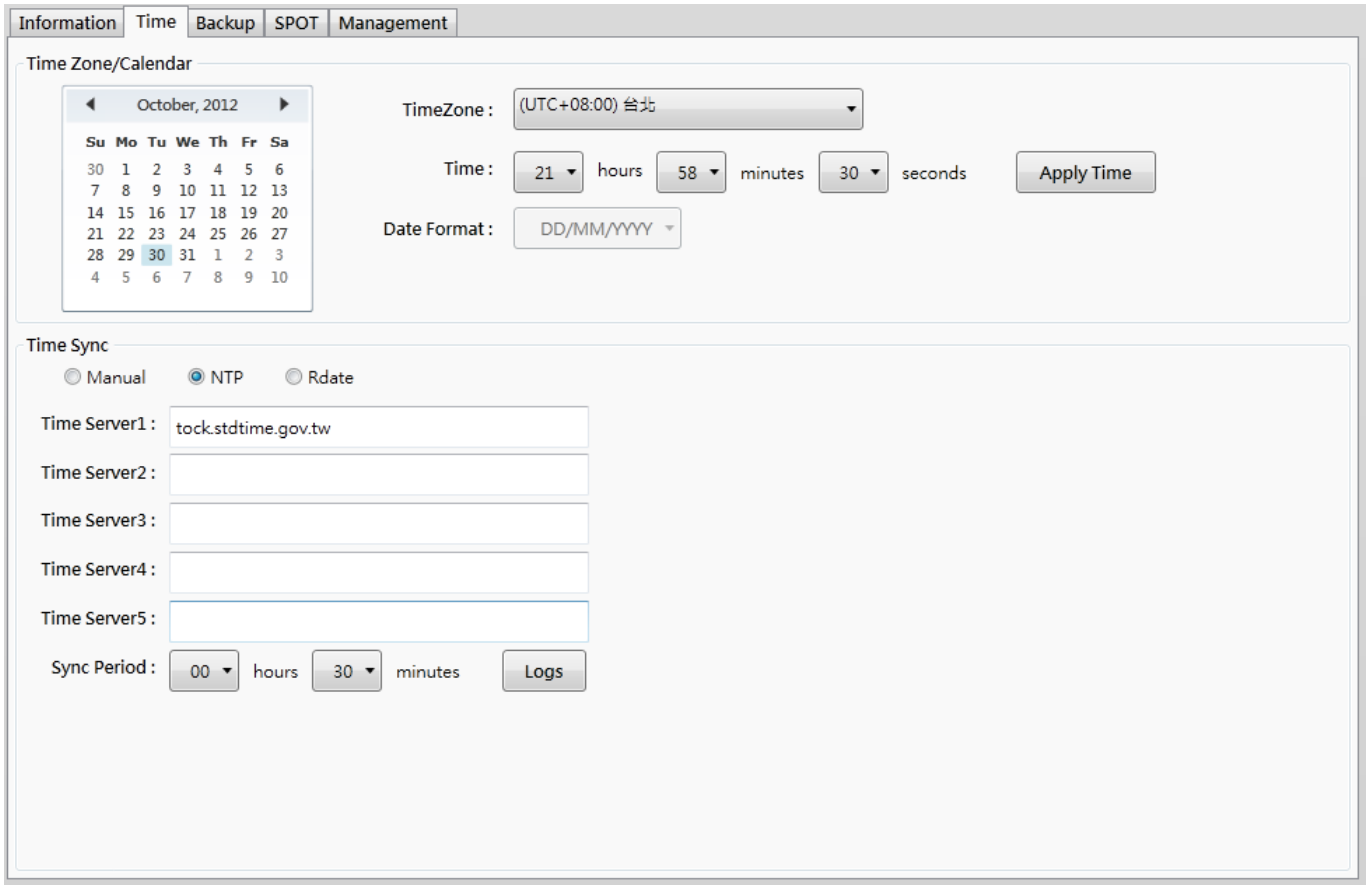
Show System Information



The system information tab shows the following items.

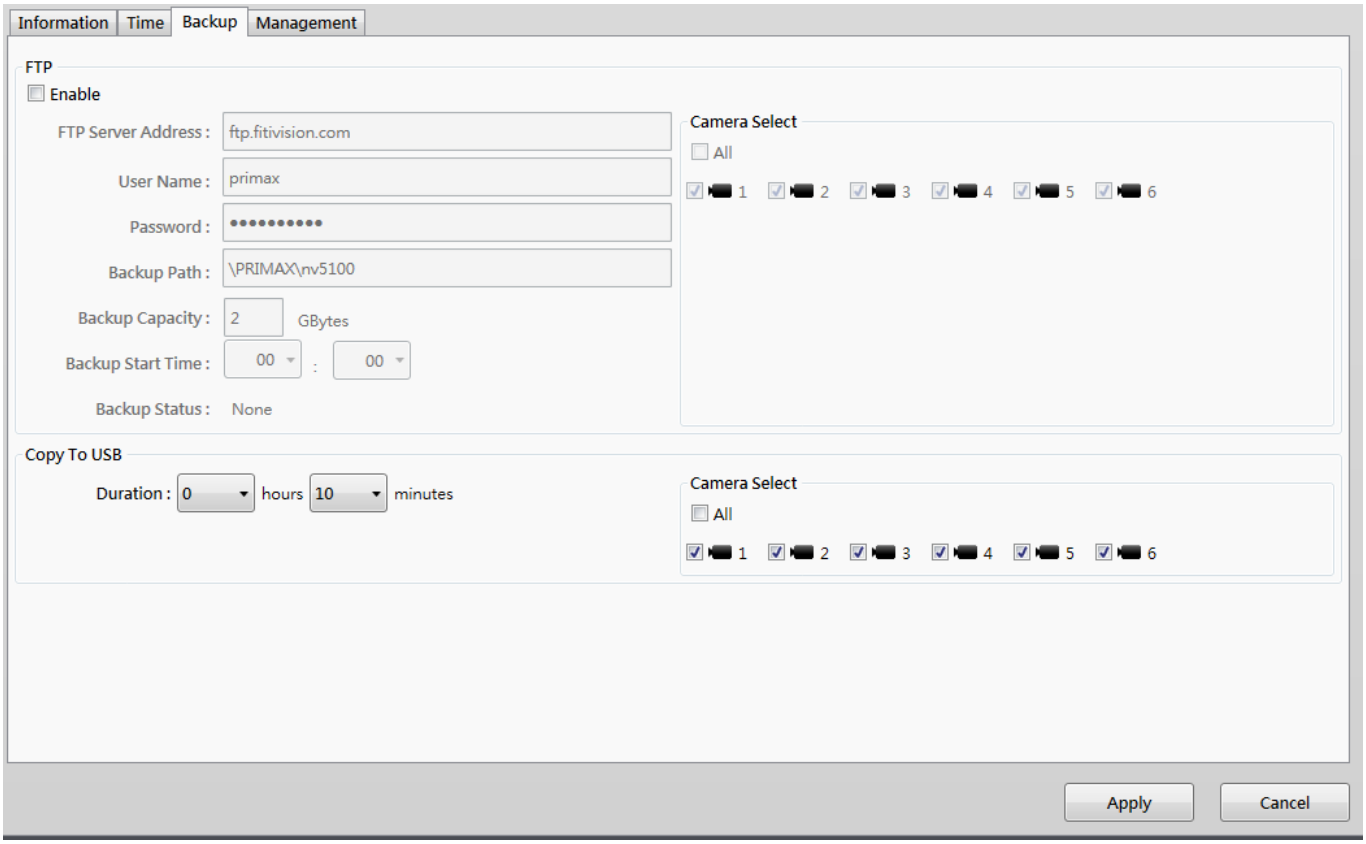
- Model
- Firmware Version
- Camera Capacity
- MAC Address
- System Memory
- CPU Usage

Modify Time Zone/System Time



1. Select current Time Zone from the drop-down menu.
2. Specify current year, month and day from the calendar.
3. Specify current time and click Apply Time button to apply the change. (the default time is set according to the real-time clock on server.
4. Select the mechanism for time sync. (sync with an Internet NTP or Rdate time server automatically.
5. Enter the IP address or the domain name of the NTP or Rdate server in the Time Server 1 – Time Server5 field and fill in the sync period. (NVR can be configured as the NTP server for the IP cameras or other servers. To ensure the date and time of the IP cameras are synchronized with the NVR, enter the NVR IP as the NTP server of the IP cameras.)
6. Click Logs button to retrieve the time sync log.
7. Click Apply button to apply the change or click Cancel button to cancel the change.

Backup Data



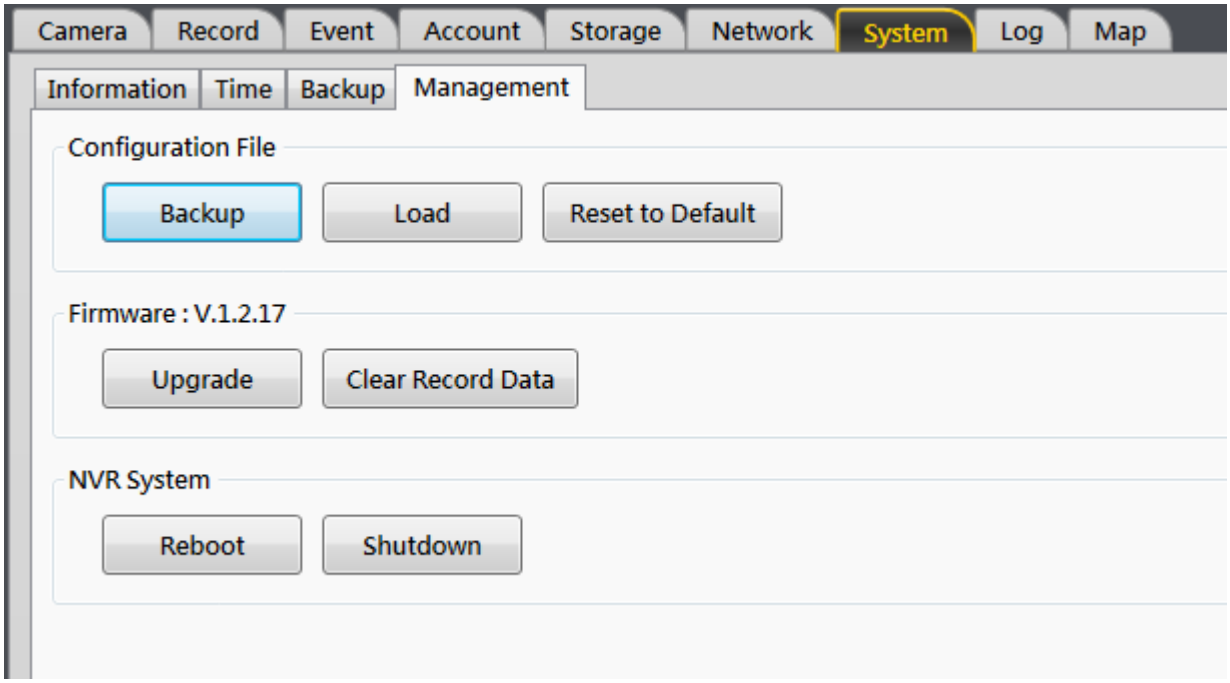
The NVR can backup recording video of previous day to ftp server as following:

1. Enter the IP address of FTP server.
2. Enter the User Name and Password.
3. Set up the Backup Path for backup files.
4. Enter the Backup Storage Capacity.
5. Enter the Start Time for backup
6. Select the cameras for backup
7. Click Apply button to apply the change or click Cancel button to cancel the change.

For copy to USB, you can specify the Duration until now and cameras here. And then, press and hold the copy button for one second to copy the video clips from the NVR to the USB drive on the front port.

System Maintenance

Windows client supports several remote NVR management features including: backup/restore configuration file, reset default configuration, upgrade firmware and reboot/shutdown NVR system.



Backup/Load Configuration

1. Click Backup/Load button.
2. Browse a destination/file for backup/load.
3. Click the OK button.
4. A confirmation dialog pops up.
5. Click the OK button to confirm and start backup/load.
6. After configuration load, the NVR will restart automatically.

Reset to Default Configuration

1. Click the Reset to Default button.
2. A confirmation dialog pops up.
3. Click the OK button to reset.
4. After configuration load, the NVR will restart automatically.

Upgrade firmware

1. Browse the firmware file for upgrading.
2. Click the OK button.
3. A confirmation dialog pops up.
4. Click the OK button to confirm and start upgrade.
5. After upgrade, the NVR will restart automatically.

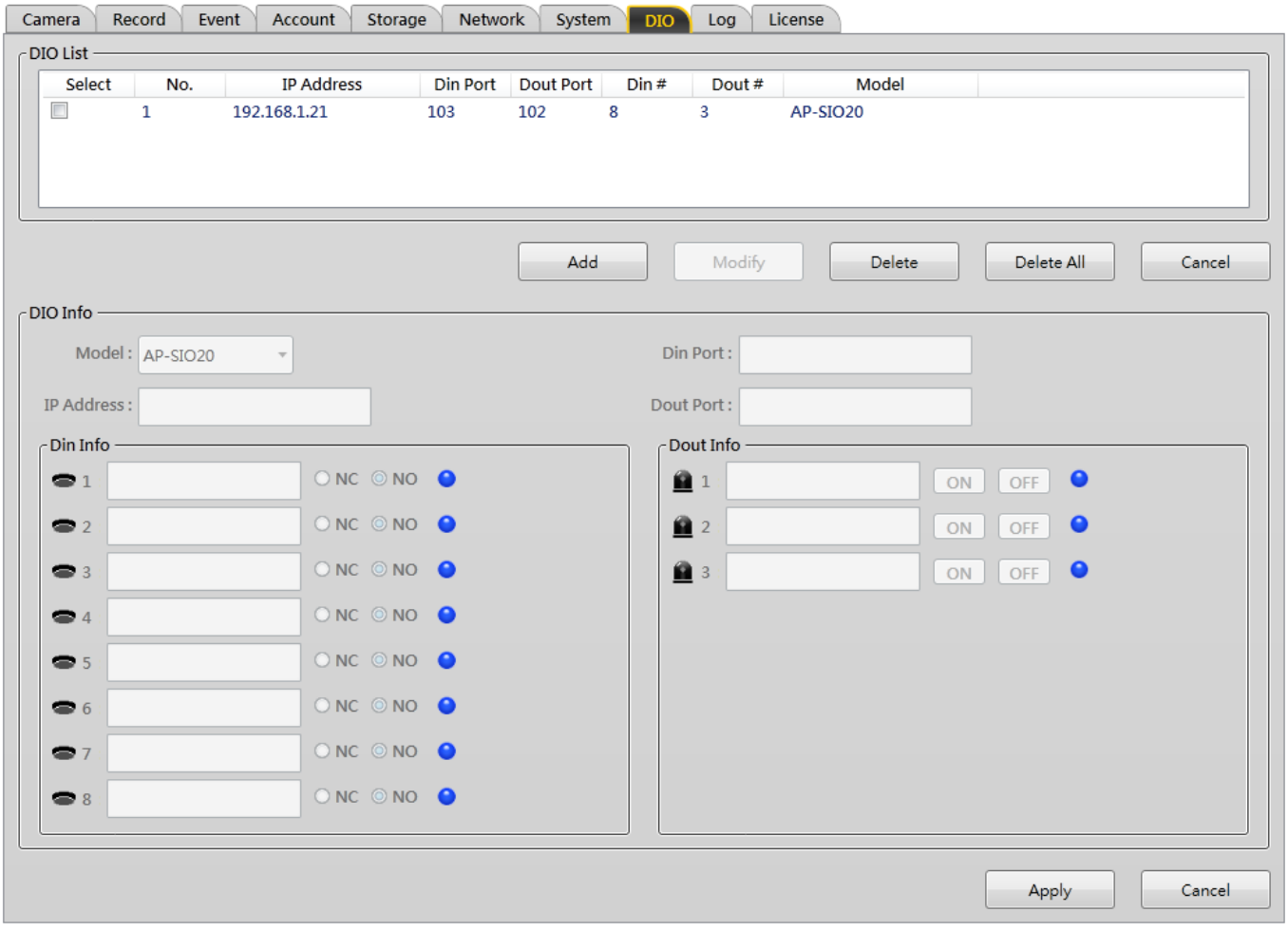
Clear Record Data

Erase all the recording data of your HDDs.

4.8 DIO Setup

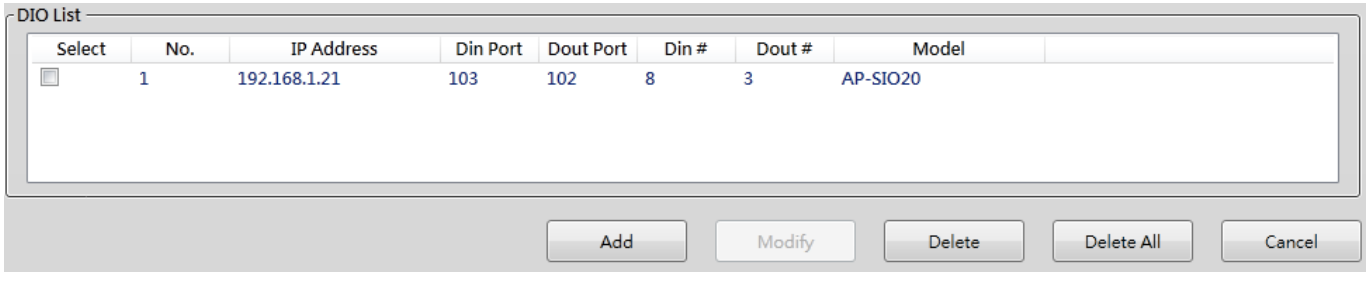
The NVR can handle the digital input/relay output devices via AP-SIO20 network I/O module. Digital input/alarm output devices are connected directly with AP-SIO20 network I/O module, and digital input/alarm output signals are converted to Ethernet through AP-SIO20 network I/O module.

DIO setup page

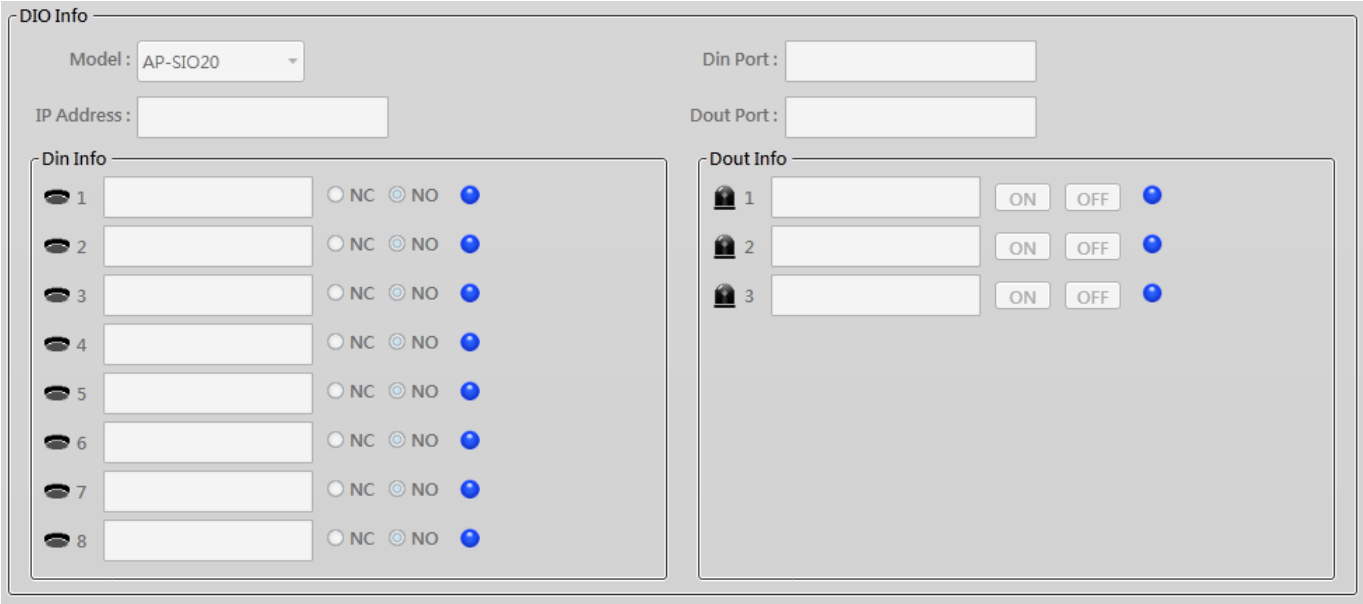


Add a network I/O module

1. Click Add button.



2. Select Model of network I/O module from the drop-down menu.



3. Specify the IP Address for network I/O module.
4. Specify the Din port (default is 103) and Dout port (default is 102).
5. Specify the name and NC/NO connection for each digital input device.(blue LED stand for normal status, red LED stand for abnormal status)
6. Specify the name for each relay output device and click ON/OFF button to turn on/turn off relay output device. (blue LED stand for turn off, red LED stand for turn on)
7. Click Apply button to apply the change to DIO List or click Cancel button to cancel the change.

Modify a network I/O module

1. Select a network I/O module on the DIO List column.
2. Click Modify button
3. Modify the DIO Info column setting.
4. Click Apply button to apply the change to DIO List or click Cancel button to cancel the change.

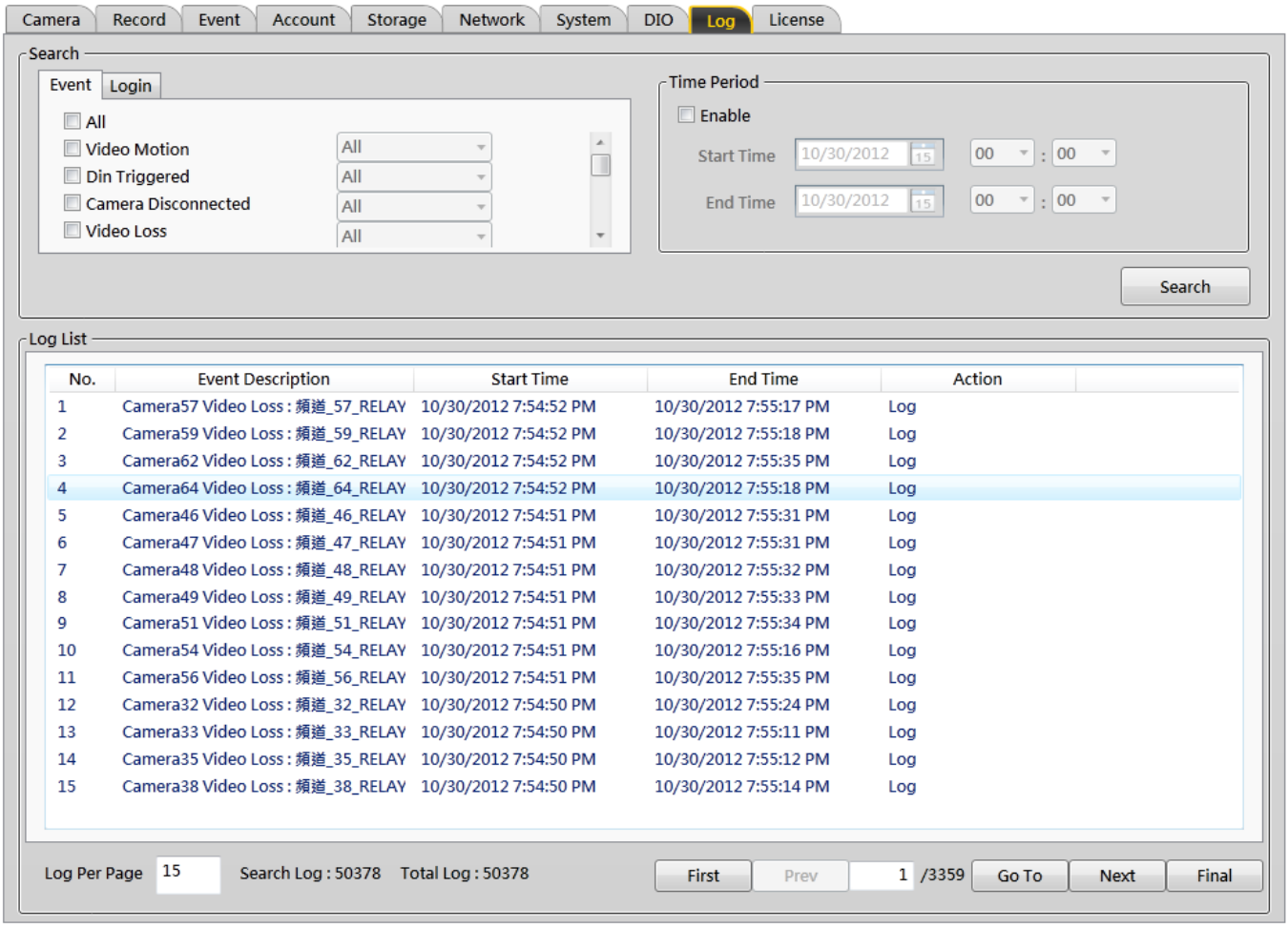
Delete a network I/O module or Delete all network I/O modules

1. Select an network I/O module on the DIO List column.
2. Click Delete button or Delete All button
3. Click Apply button to apply the change to DIO List or click Cancel button to cancel the change.

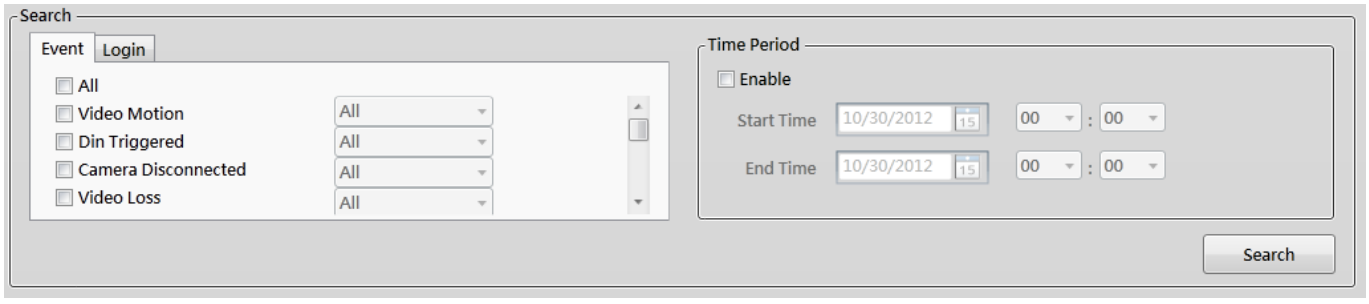
4.9 Log

The Log setup page shows recent event and login logs. In case of abnormal event or system malfunction, the logs can be searched to analyze the related events or system problems.

Log page


Camera
Record
Event
Account
Storage
Network
System
DIO
Log
License
Search
Event
Login
All
Video Motion
Din Triggered
Camera Disconnected
Video Loss
Time Period
Enable
Start Time
10/30/2012
00 : 00
End Time
10/30/2012
00 : 00
Search
Log List
No. Event Description Start Time End Time Action
1 Camera57 Video Loss : 頻道_57_RELAY 10/30/2012 7:54:52 PM 10/30/2012 7:55:17 PM Log
2 Camera59 Video Loss : 頻道_59_RELAY 10/30/2012 7:54:52 PM 10/30/2012 7:55:18 PM Log
3 Camera62 Video Loss : 頻道_62_RELAY 10/30/2012 7:54:52 PM 10/30/2012 7:55:35 PM Log
4 Camera64 Video Loss : 頻道_64_RELAY 10/30/2012 7:54:52 PM 10/30/2012 7:55:18 PM Log
5 Camera46 Video Loss : 頻道_46_RELAY 10/30/2012 7:54:51 PM 10/30/2012 7:55:31 PM Log
6 Camera47 Video Loss : 頻道_47_RELAY 10/30/2012 7:54:51 PM 10/30/2012 7:55:31 PM Log
7 Camera48 Video Loss : 頻道_48_RELAY 10/30/2012 7:54:51 PM 10/30/2012 7:55:32 PM Log
8 Camera49 Video Loss : 頻道_49_RELAY 10/30/2012 7:54:51 PM 10/30/2012 7:55:33 PM Log
9 Camera51 Video Loss : 頻道_51_RELAY 10/30/2012 7:54:51 PM 10/30/2012 7:55:34 PM Log
10 Camera54 Video Loss : 頻道_54_RELAY 10/30/2012 7:54:51 PM 10/30/2012 7:55:16 PM Log
11 Camera56 Video Loss : 頻道_56_RELAY 10/30/2012 7:54:51 PM 10/30/2012 7:55:35 PM Log
12 Camera32 Video Loss : 頻道_32_RELAY 10/30/2012 7:54:50 PM 10/30/2012 7:55:24 PM Log
13 Camera33 Video Loss : 頻道_33_RELAY 10/30/2012 7:54:50 PM 10/30/2012 7:55:11 PM Log
14 Camera35 Video Loss : 頻道_35_RELAY 10/30/2012 7:54:50 PM 10/30/2012 7:55:12 PM Log
15 Camera38 Video Loss : 頻道_38_RELAY 10/30/2012 7:54:50 PM 10/30/2012 7:55:14 PM Log
Log Per Page 15
Search Log : 50378
Total Log : 50378
First
Prev
1 /3359
Go To
Next
Final

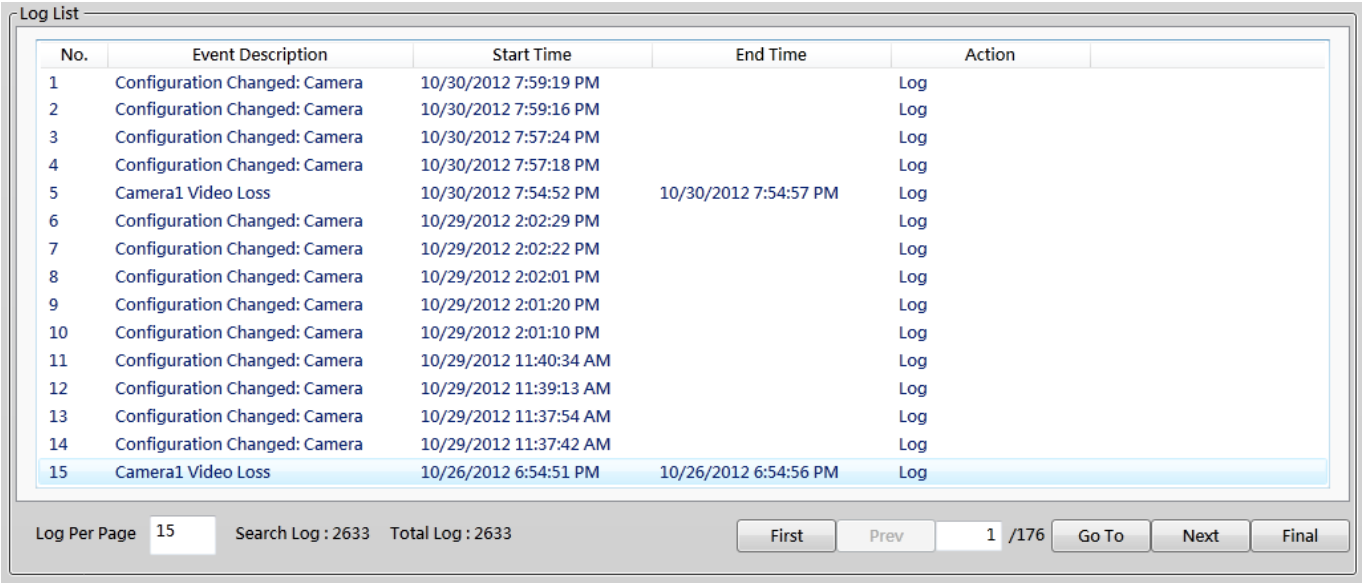
1. Select Event or Login log.



2. Specify Event Type (event types include video motion, digital input, camera disconnected,

video loss, storage full, hard disk failure, abnormal recording, backup failure, system boot-up, system shutdown and system configuration changed events) or Login's username and source (local or remote).

3. Specify the search time range.
4. Click Search button will show the results in Log List column.

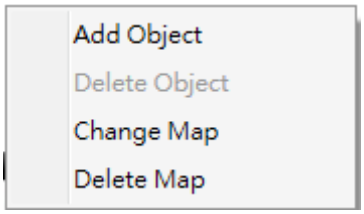

Log List
No. Event Description Start Time End Time Action
1 Configuration Changed: Camera 10/30/2012 7:59:19 PM Log
2 Configuration Changed: Camera 10/30/2012 7:59:16 PM Log
3 Configuration Changed: Camera 10/30/2012 7:57:24 PM Log
4 Configuration Changed: Camera 10/30/2012 7:57:18 PM Log
5 Camera1 Video Loss 10/30/2012 7:54:52 PM 10/30/2012 7:54:57 PM Log
6 Configuration Changed: Camera 10/29/2012 2:02:29 PM Log
7 Configuration Changed: Camera 10/29/2012 2:02:22 PM Log
8 Configuration Changed: Camera 10/29/2012 2:02:01 PM Log
9 Configuration Changed: Camera 10/29/2012 2:01:20 PM Log
10 Configuration Changed: Camera 10/29/2012 2:01:10 PM Log
11 Configuration Changed: Camera 10/29/2012 11:40:34 AM Log
12 Configuration Changed: Camera 10/29/2012 11:39:13 AM Log
13 Configuration Changed: Camera 10/29/2012 11:37:54 AM Log
14 Configuration Changed: Camera 10/29/2012 11:37:42 AM Log
15 Camera1 Video Loss 10/26/2012 6:54:51 PM 10/26/2012 6:54:56 PM Log
Log Per Page 15
Search Log : 2633
Total Log : 2633
First
Prev
1
/176
Go To
Next
Final

4.10 Map

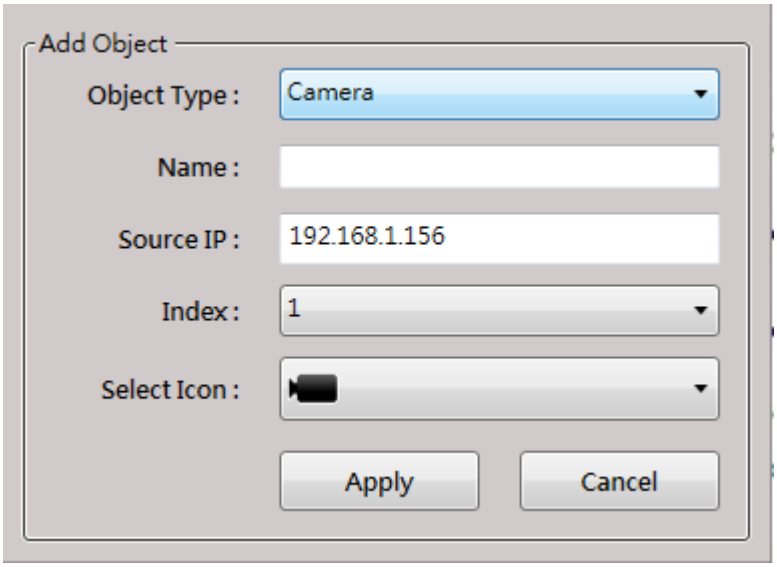
1. In the Map page, right-click the E-map at Map Area and select Add Map.
2. Select your top layer map. (The default name for top layer map is Map0, you can rename it by right click the associated icon at Emap tree panel of right-top corner.)

3. Click Change Map to change map or Delete Map to delete map.

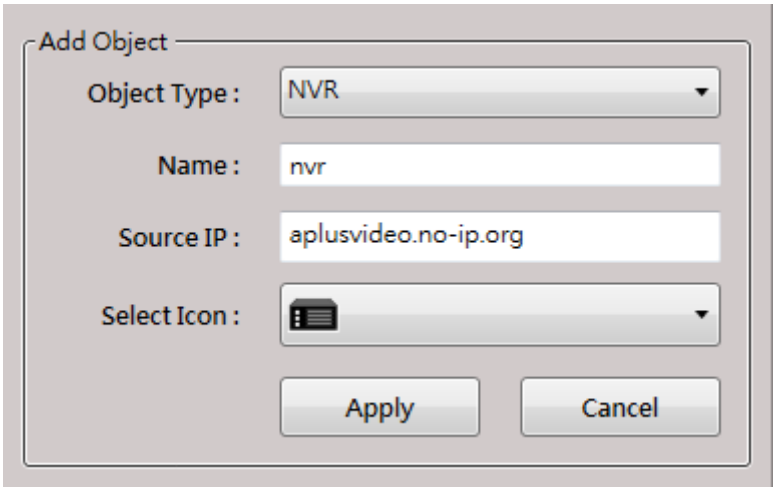
4. Place Camera, NVR, network I/O module, Din, Dout and Map to anywhere on the top layer map by right click on the top layer map and select Add Object.



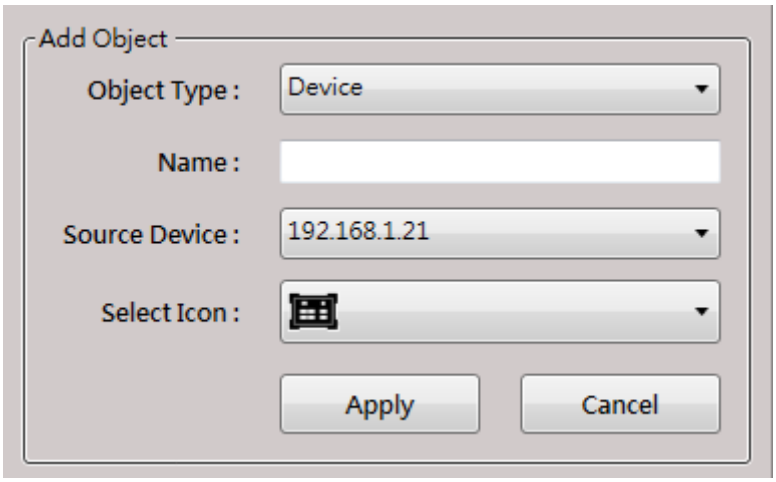
5. Select an object type and then enter their name, source IP, index and icon.
6. Add a camera object:



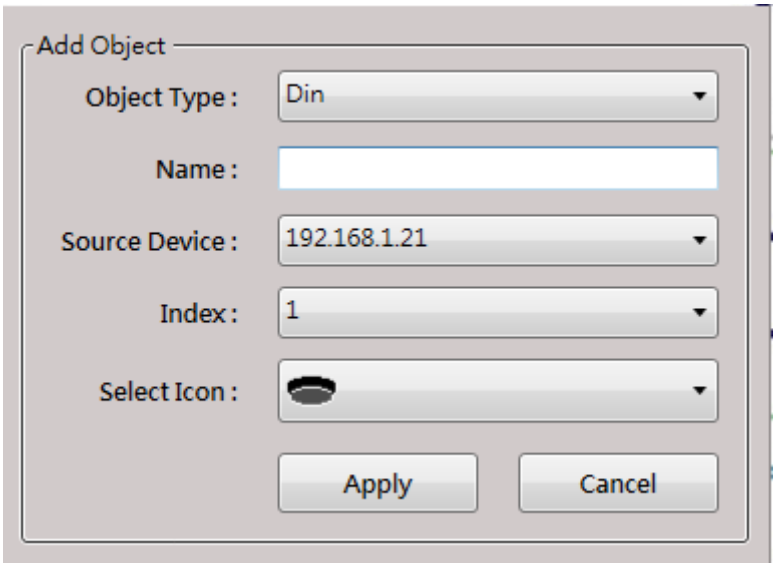
7. Add a NVR object:



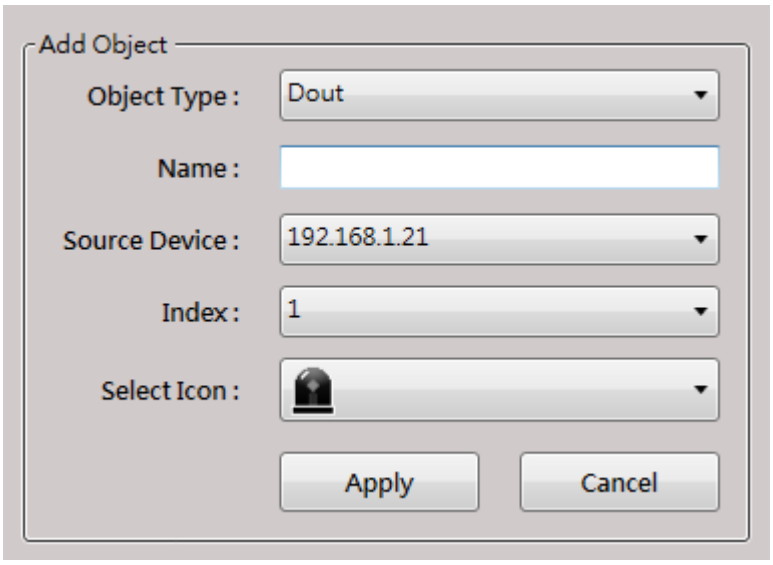
8. Add a network I/O module object:



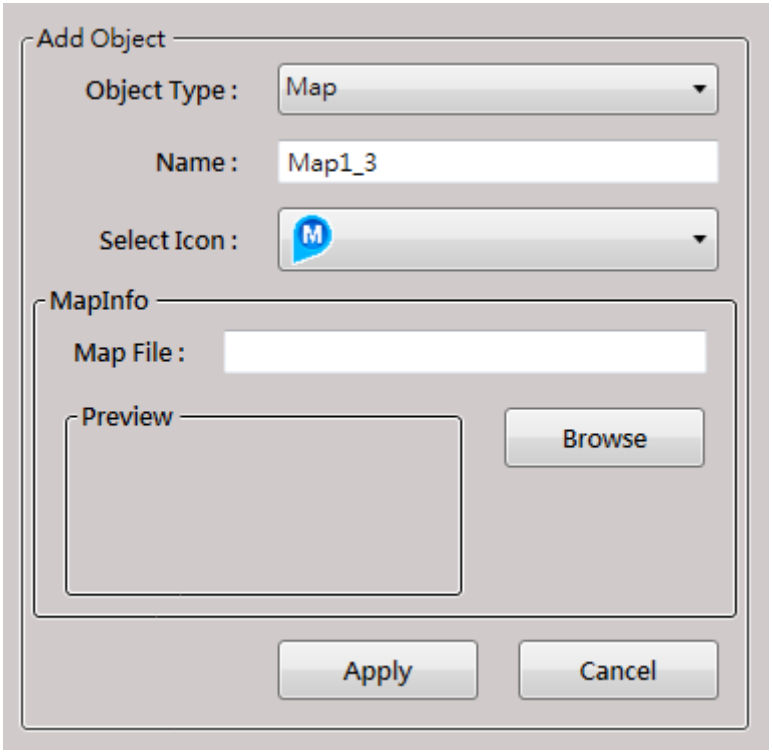
9. Add a Din object:



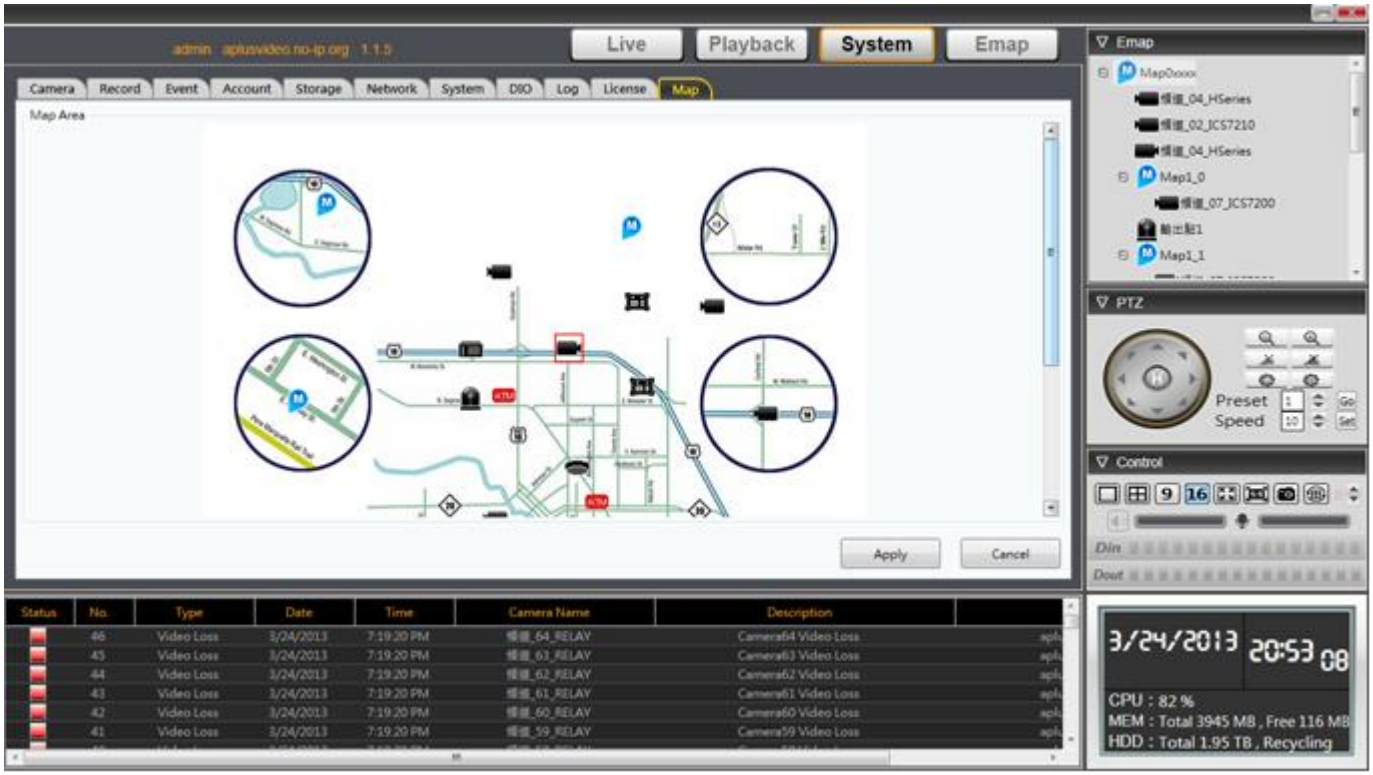
10. Add a Dout object:



11. Add a sub-layer map object:

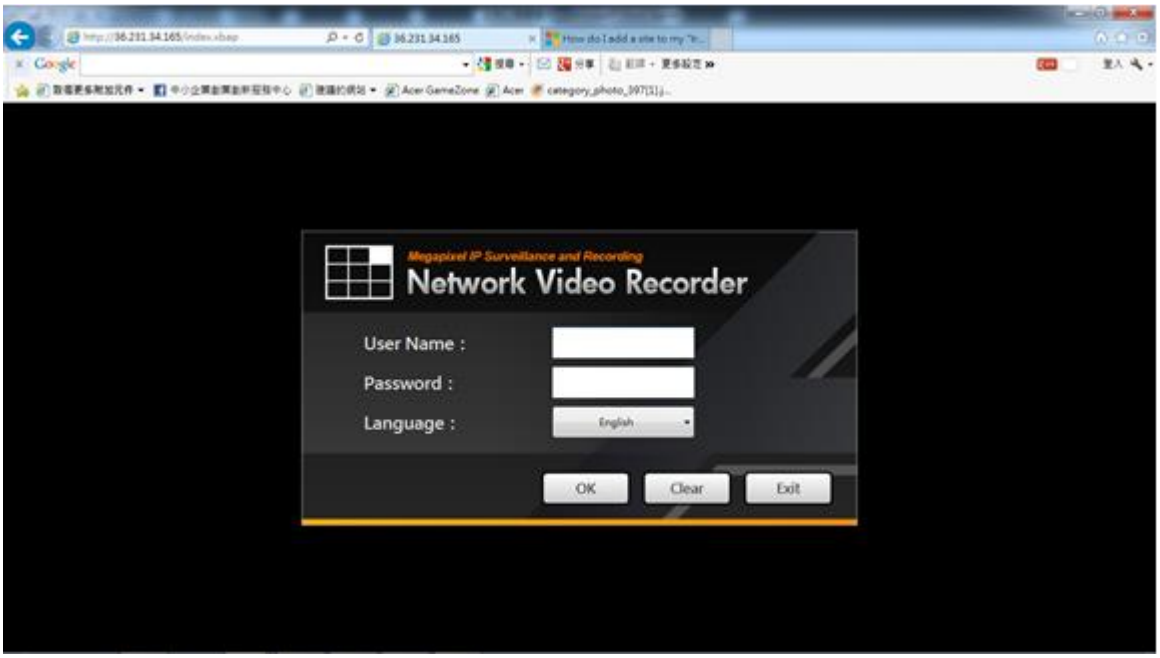

Add Object
Object Type :
Map
Name :
Map1_3
Select Icon :
MapInfo
Map File :
Preview
Browse
Apply
Cancel

12. Click Apply button to apply the change or click Cancel button to cancel the change.



Chapter 5 WEB Client

Open Internet Explorer browser and enter NVR's IP address in URL field. Go to the IP address, users have to choose a language and enter the correct User Name and Password to login this NVR system.



Note: Using WEB client for the first time, please add this NVR as browser's trusted sites to make sure WEB client has download privilege:

1. Click the Start button -> Internet Explorer at your Windows® desktop.
2. Click the Tools button, and then click Internet options.
3. Click the Security tab.
4. Now click on Trusted sites and then click on the sites button.
5. Enter the Website URL and click on Add.
6. When you are finished, click on Close

The operation of WEB client is the same as Windows® remote client. Please refer to Chapter 4 for the details..

Chapter 6 CMS Client

The CMS client is a multiple NVRs management software. You can operate NVR units via CMS client to monitor, playback the connected NVRs, import multiple-layered maps which display the location of all NVRs, IP cameras, network I/O modules and digital input/output devices and manage the functions of the NVR systems. The powerful software can manage max. 16 NVRs, 256 IP cameras and were specifically designed as an enterprise solution.

The look and feel of CMS client is quite similar with NVR Windows® remote client. We'll mention the difference parts as below.

6.1 Login

Click the Start button -> NVR Client -> CMS Client at your Windows® desktop. When the client is up, you will see the following login window.

Login window

Login your CMS client by entering User Name, Password, Language and then OK begin using this unit. (Note: The default administrator: User Name is admin, Password is "1234"). After entering the correct information, you will see the live display screen within 10 seconds.

6.2 Live Display Screen

Please refer to section 4.2 for the details.

6.3 Emap Screen

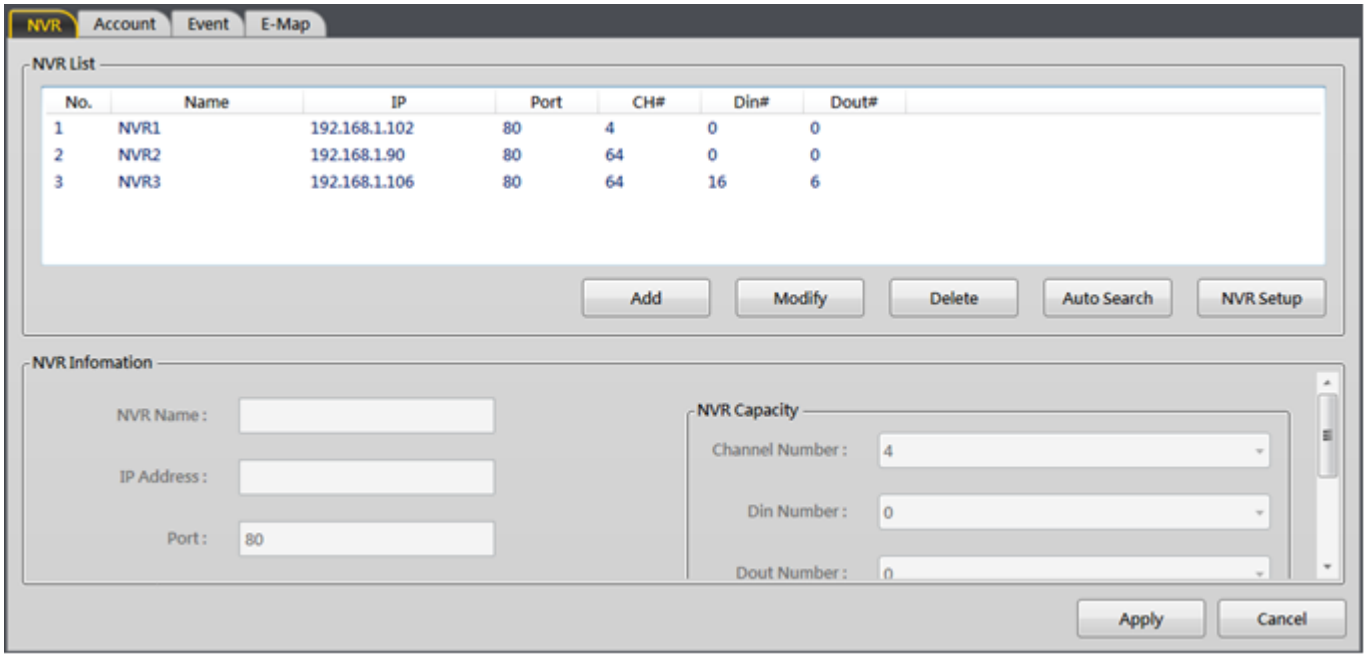
Please refer to section 4.3 for the details.

6.4 Playback Screen

Please refer to section 4.4 for the details.

6.5 CMS Setup Page

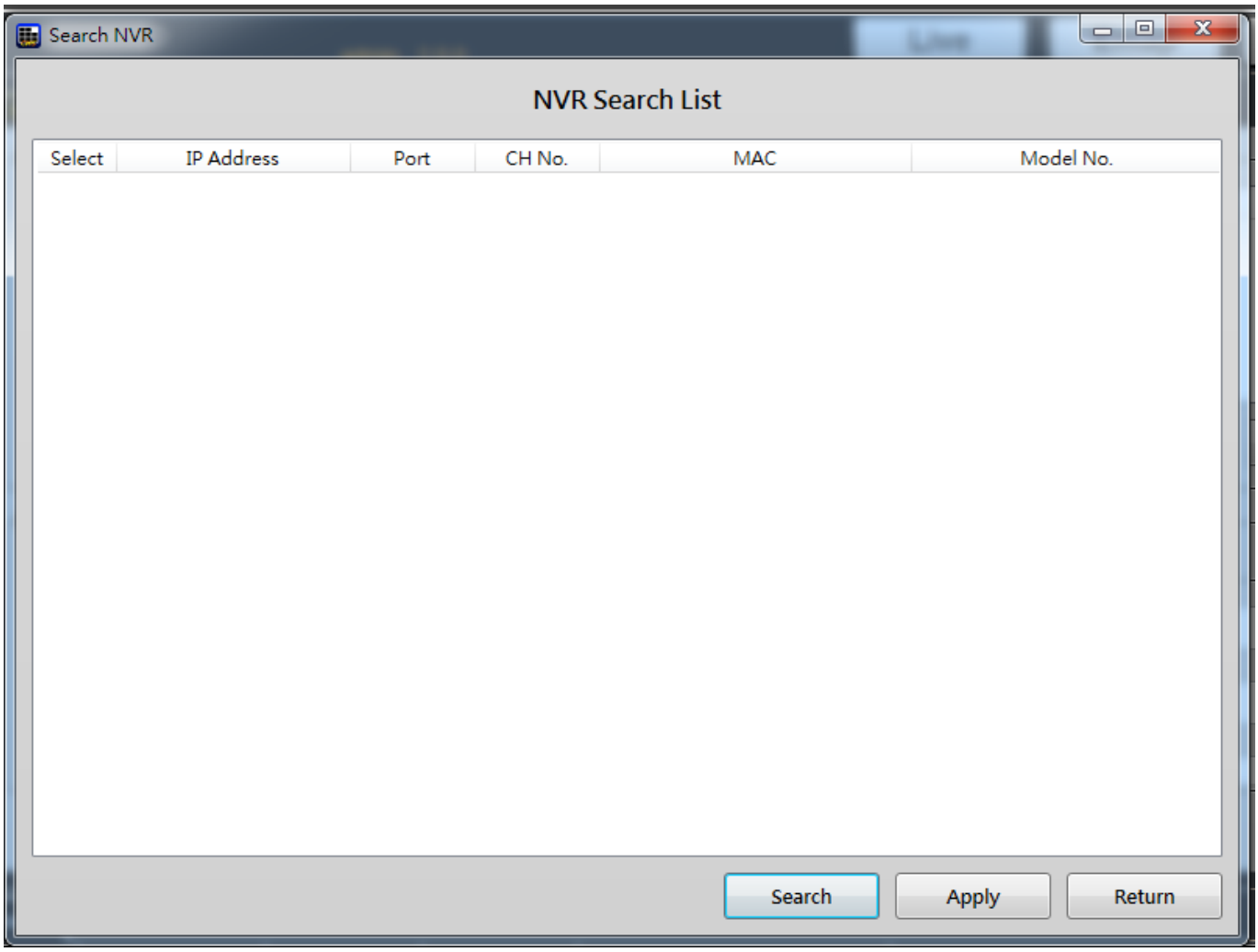
NVR setup page



NVRs can be added to NVR List in two ways: automatic or manual.

Automatic add NVR

1. Click Auto Search button to bring up the Search NVR popup.



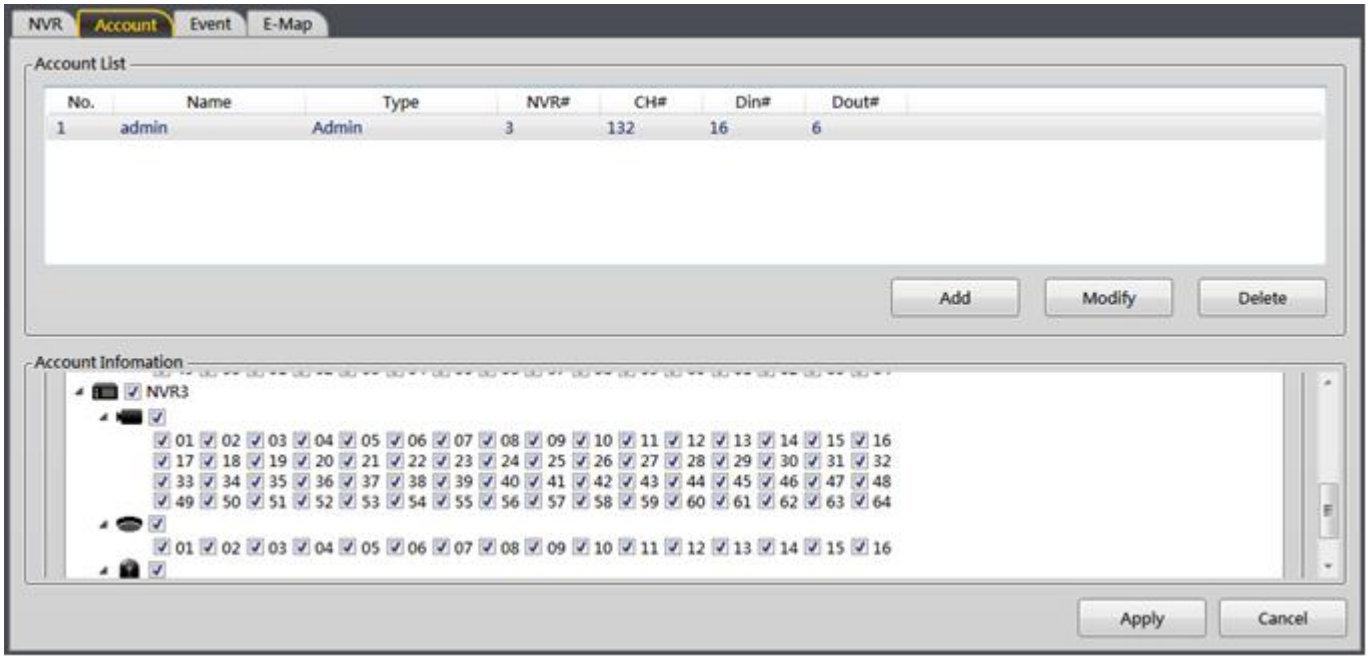
2. Click Search button to list all the currently available NVRs.
3. Select the check box next to the desired NVR.
4. Click Apply button to apply the change or Return button to cancel the change.
5. Click an available NVR on the NVR List.
6. Click Apply button to apply the change or Cancel button to cancel the change.

Manual add NVRs

1. Click an desired NVR on the NVR List.
2. Enter the NVR Name.
3. Enter the IP Address and Port.
4. Enter the Login Name and Password.
5. Check Alarm Auto-report to enable the event report of associated NVR.
6. Enter the Channel Number, Din Number and Dout Number of NVR capacity column.
7. Click Apply button to apply the change or Cancel button to cancel the change.

Account setup page

The account setup is set to provide individual user role-based permissions, including access rights on specific channels, Dins and Douts.



Add a user

1. Click Add button.
2. Fill in User Name, Password.
3. Select NVR that the user has access rights.
4. Specify the permissions for specified channels, Dins and Douts.
5. Click Apply button to apply the change to Account List or click Cancel button to cancel the change.

Modify a user

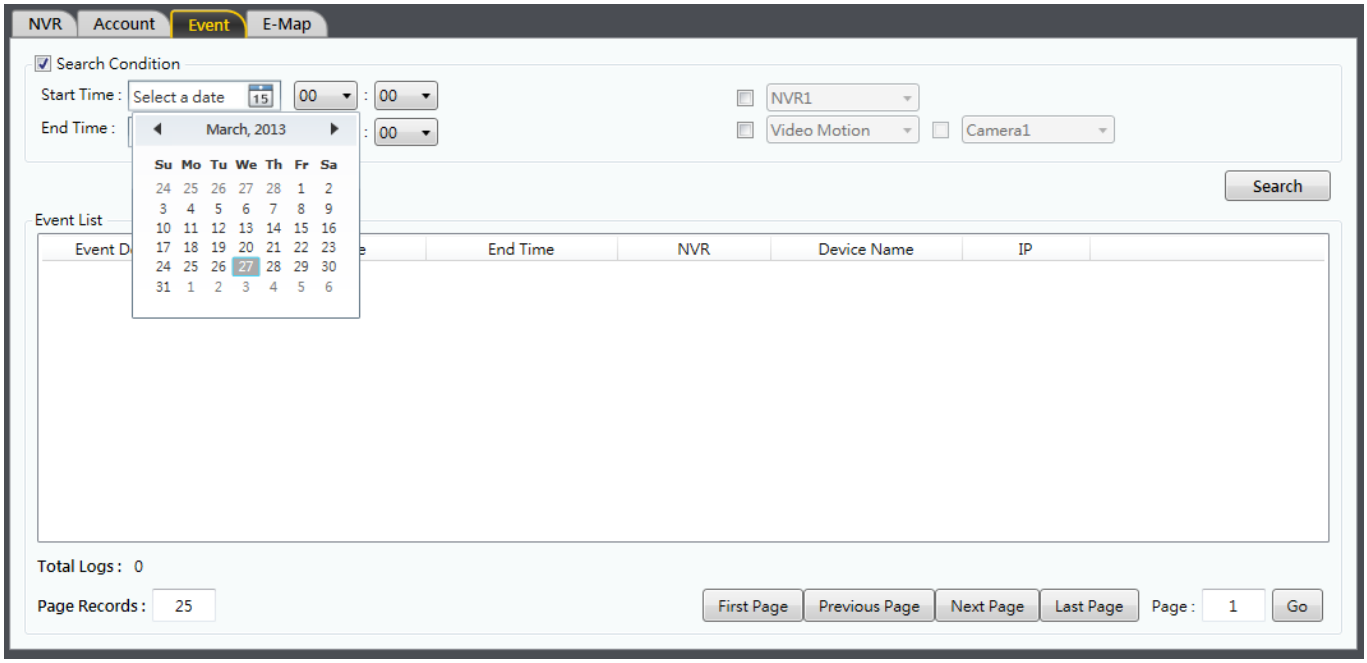
5. Select a user on the Account List column.
6. Click Modify button.
7. Modify the related account information setting.
8. Click Apply button to apply the change to Account List or click Cancel button to cancel the change.

Delete a user

4. Select n user on the Account List column.
5. Click Delete button.
6. Click Apply button to apply the change to Account List or click Cancel button to cancel the change.

Event setup page

The event setup page shows recent event logs. In case of abnormal event or system malfunction, the logs can be searched to analyze the related events or system problems.



1. Check the Search Condition.
2. Specify the Start Time and End Time for search time range.
3. Specify NVR unit and Event type (event types include video motion, digital input, camera disconnected, video loss, storage full, hard disk failure, abnormal recording, backup failure, system boot-up, system shutdown and system configuration changed events) and camera number.
4. Click Search button will show the results in Event List column.

Emap setup page

Please refer to section 4.10 for the details.